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ADDRESS.

THE RISE AND PROGRESS OF DERMATOLOGY.

An address delivered at the opening of the Section of Dermatology, at the Sixty-fifth Annual Meeting of the British Medical Association, Montreal, Aug. 31 to Sept. 4, 1897.

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As embryology furnishes the key to the riddles of anatomy, so the history of the evolution of any branch of science throws light on many points that would otherwise be dark, explains the origin of terms and theories, rescues from oblivion truths overlooked or forgotten, and, showing the pitfalls which hindered those who have gone before, teaches us to walk more warily.

Dermatology, although its victories have perhaps been less showy than those won in some other special departments, has not lagged behind in the onward march of medicine. The centenary of the birth of scientific dermatology is not long past. In 1790 the Medical Society of London awarded the Fothergillian gold medal to Robert Willan, who had some time before submitted to it the outline of his plan for the arrangement and description of cutaneous diseases. Willan may justly be called the creator of dermatology. Before him the skin was looked upon more as a mirror on whose face internal disease "glassed itself in tempest" than as an important organ subject to manifold disorders peculiar to itself.

Forerunners of Willan.—Willan was not the first who wrote on skin disease. As our terminology bears witness, the Greeks gave a good deal of attention to the subject. Hippocrates speaks of "pityriasis," "lichen," "herpes," "pomphi," and many other forms of cutaneous lesion, and roughly classifies them. Later Celsus, Galen, Paul of Ægina, and after them the Arabians, described various affections of the integument. The medieval writers saw much of leprosy, and they doubtless often imagined it where it did not exist. At a later period syphilis overshadowed everything.

The first treatise professedly devoted to diseases of the skin was that of Hieronymous Mercurialis of Venice, "De Morbis Cutaneis et de Omnibus Corporis Excrementis." The author had, however, nothing to teach beyond what he found in the ancient writers. In the early part of the eighteenth century Daniel Turner produced "A Treatise of Diseases Incident to the Skin," which is almost wholly a compilation from other writers, and treats not of the skin alone, but of all "distempers" affecting "the outward parts or confines, as may be said, of the human body." Thus not only the eruptive fevers, the "green sickness" and the "yellow jaundice," but phimosis and paraphimosis, hemorrhoids, "chaps on the fundament," imperforate conditions of the natural passages of the body, ulcerations of all kinds, burns, stings and bites of venomous creatures, hydrophobia and poisoned wounds, are looked upon by the author as falling within his province.

Later in the same century there appeared almost simultaneously two works, each of which in its own way marked a distinct advance towards a scientific dermatology. In a book entitled "Doctrina de Morbis Cutaneis," Vienna, 1776, Joseph Jacob von Plenck for the first time attempted a complete classification of diseases of the skin. He arranged them according to what appeared to him to be the most characteristic objective features, in 14 groups with 120 varieties. In his "Tractatus de Morbis Cutaneis," Paris, 1777, Lorry, besides giving good descriptions of clinical phenomena, discussed the pathology of cutaneous affections in the light of the knowledge of the structure of the skin and the morbid processes of which it might be the seat, that existed in his day.

Neither Plenck nor Lorry, meritorious as were their works, did much to dissipate the darkness that was upon the face of this branch of medicine. At the beginning of the nineteenth century it could be said with perfect truth that little improvement had been made in the subject at large since the days of Avicenna.

The birth of dermatology.— In 1808 there appeared the first volume of Willan's treatise "On Cutaneous Diseases," a great work which its author did not live to complete. Ten years before, he had given to the world a slender volume dealing with a particular class of lesions of the skin. Willan set himself the task of reducing the chaos of skin diseases to something like a cosmos. The following are, in his own words, the objects at which he aimed in the execution of this design:

1. To fix the sense of the terms employed by proper definitions.

2. To constitute general divisions or orders of the diseases from leading and peculiar circumstances in their appearance; to arrange them into distinct genera and to describe at large their specific forms or varieties.

3. To classify and give names to such as have not been hitherto sufficiently distinguished.

4. To specify the mode of treatment for each disease.

Like Plenck, Willan grouped skin diseases according to the character of the predominent lesion; and indeed there can be little doubt that he took the groundwork of his classification from Plenck. The English dermatologist, however, reduced the fourteen orders of his Austrian forerunner to seven. To these another order, "bullæ," was afterward added. This classification is of course very defective, inasmuch as it takes account only of the outward and visible signs and results of disordered action. As the skin has but

a limited range of pathologic expression, lesions identical in appearance and in structure are produced by widely different causes. Hence a classification based solely on objective appearances inevitably led to the formation of motley groups including conditions having no essential feature in common. But Willan's classification, defective as it was, at least introduced a definite principle of arrangement into a region of pathology where before all was "most admired disorder." If he got the idea from Plenck, he must be allowed the credit of having greatly bettered the instruction which he received, and of having presented it to the medical world in such a manner as to impress on the mind of the profession.

It is not, however, Willan's classification that constitutes his chief title to be regarded as the founder of dermatology. His judicious selection and accurate definition of terms; his astonishingly faithful word pictures of the appearances of disease drawn directly from nature, and made more vivid but scarcely more graphic by the colored engravings with which he supplemented his descriptions, and his rational methods of treatment, were all his own. It was his teaching that transformed a confused jumble of folklore as to "tetters," wet and dry, and of figments of the medical imagination embodied in words of learned sound but little meaning into a science, rudimentary indeed, but grounded on a solid foundation of observed fact.

The English school.—Willan left behind a disciple well worthy to wear his mantle. Thomas Bateman, who completed Willan's unfinished "Delineations of Cutaneous Diseases," published a "Practical Synopsis of Cutaneous Diseases," which did far more to make his master's work known than Willan's own unwieldy and incomplete book. It is hardly too much to say that without Bateman Willan might have been forgotten. Bateman, however, was not a mere expositor; he was a man of truly scientific mind, and would doubtless have added largely to knowledge had not he, too, been cut off prematurely.

Bateman's "Synopsis" ran through several editions in his lifetime, and afterward found an editor in Anthony Todd Thomson, who also published an "Atlas of Delineations of Cutaneous Eruptions," illustrative of the descriptions in Bateman's book. Thomson paid special attention to diseases of the skin for more than thirty years. He was an accurate observer and was very successful in treatment. Toward the end of his life he embodied the fruits of his experience in a "Practical Treatise on Diseases Affecting the Skin," which was completed by his nephew, Edmund Alexander Parkes, and published in 1850. Thomson held that there could "scarcely be any difference of opinion respecting the necessity of arranging the tribe of those diseases. . . . (of the skin) according to the physical characters of the eruptions," and in adopting this method he chose "as the least exceptionable the order of Willan." Thomson was physician to University College Hospital, where he was the first of what may be termed the dermatologic succession, which, handed on in turn by Parkes, Hillier and Tilbury Fox, is still worthily continued by Radcliffe Crocker.

Almost simultaneously with the treatise of Thomson and Parkes there appeared a work which is one of the landmarks in the history of the English school of dermatology. This was Erasmus Wilson's "Diseases of the Skin," the preface to which is dated 1851. Wilson, who had commenced his scientific career as an anatomist, had already done a good deal of work in dermatology, particularly in the microscopic study of the cutaneous tissues. He made a new classification of skin affections, grouping them according to the structure in which the morbid process originated into four primary divisions. 1, diseases of the derma; 2, diseases of the sudoriparous glands; 3, diseases of the sebiparous glands; 4, diseases of the hair and hair follicles. Wilson's influence was for a long time predominant among his own countrymen, and by workers in other countries he was looked upon as the foremost representative of British dermatology. He had an eye for form and color and often found the right word to express them. His description of the diseased conditions are thus almost unrivaled in their picturesque and yet faithful rendering of appearances. He added little, however, to our knowledge of the pathology and therapeutics of skin diseases, and added not a little to the confusion which existed on the subject by his artificial classification and his ever-changing nomenclature.

The living leader of our British school of dermatology, Mr. Jonathan Hutchinson, has brought to the study of the pathology of the skin a knowledge of disease in general such as probably no other dermatologist has ever possessed. This, together with a marked originality and independence of mind, and a singular power of seeing points of likeness in things to outward seeming most unlike, has enabled him to throw an unexpected light on many dark places of dermatology. The characteristics of the British school of dermatology are those commonly held to be distinctive of the British intellect in whatever sphere it is set to work. We are a practical people, loving facts and caring little for theories. Accordingly British dermatologists from Willan to Hutchinson have been, first of all, observers. They have striven to get at what Majendie called the *fait brut*, to see things as they really are, and to describe what they saw as faithfully as they could. They have been distrustful of generalizations and cautious, perhaps over-cautious, in deductions. But the facts gathered by them have endured while theories and systems have followed each other into nothingness; and dermatology as it exists today is largely the work of their hands.

The French school.—In France a school of dermatology arose independently in the early years of the century. In 1808 Alibert published his "Description des Maladies de la Peau observées à l'Hôpital Saint Louis," which he followed up two years later by a "Traité Théorique et Pratique des Maladies de la Peau" and several other works. The most valuable part of his publications was the illustrations; his writings only added to the darkness in which the whole subject of diseases of the skin was then enshrouded. His terminology was to the last degree confusing, his classifications arbitrary, his descriptions often fanciful. Yet he contributed to the advance of knowledge by directing the attention of more scientifically minded workers to the subject. Among these was Biett, who adopted Willan's classification with some modifications and introduced it into France. In 1831 Rayer sketched out a plan of classification of skin diseases on a basis of morbid anatomy, dividing them into: 1, inflammations; 2, morbid secretions; 3, congestions and hemorrhages; 4, anemias; 5, neuroses; 6, deformities. Among the leaders of the French school who followed Biett were Cazenave, Gibert, Devergie and Bazin, all of whom did some-

thing to advance the knowledge of skin diseases, although they were apt to let themselves be misled by a tendency to erect systems on unsound foundations. In recent years the labors of Hardy, Vidal, Besnier and Brocq have placed the French school in the forefront of scientific dermatology, a position which, with such men as Darier, Thibierge, Wickham to take the place of their seniors when they have to fall out of the ranks, it is in no danger of losing.

The German school.—The year 1844 marked the beginning of a new era in the study of disease of the skin, for it witnessed the first appearance before the scientific world of Ferdinand Hebra. That remarkable man breathed a new life into the dry bones of dermatology, and set it on a path of progress which has already led to great results. Hebra applied to the investigation of skin diseases the pathologic teaching of Rokitansky. He classified them not according to their objective appearances or to the structures supposed to be primarily or mainly affected, but according to the nature of the pathologic processes of which they were examples. He used the experimental method, producing various lesions on healthy skin by artificial means, and observing the changes which they underwent when allowed to run their own course and when modified by treatment of different kinds. In this way Hebra rationalized dermatology, ridding it of the superstitions as to dyscrasiæ with which it had before been infested and giving to the treatment of skin disease a directness of purpose and a simplicity of means undreamed of by his predecessors. The influence of his teaching was felt everywhere except in France, where the traditional belief in dyscrasiæ persisted till a comparatively recent period. Hebra's work has been carried on by Auspitz, Kaposi and Neumann in Vienna, by Pick in Prague, Schwimmer in Buda-Pesth, Lewin and Lassar in Berlin, Neisser in Breslau, and others.

If Willan was the creator, Hebra must be acknowledged as the greatest among the reformers of dermatology. This glory must be his in spite of the fact that his classification in its leading features had been anticipated by Rayer. Hebra, however, worked it out so fully as to make it his own; and his classification, though it has necessarily been modified as knowledge grew, notably by the influence of Virchow's "cellular pathology" and by the newer bacteriologic doctrine, can never be superseded till an arrangement based on etiology becomes possible.

The American school.—The history of dermatology in America has been written by Prof. J. C. White of Harvard and by Prof. Louis A. Duhring of Philadelphia, from whom all that here can be said on the subject is taken. For the first thirty years or more of the century little or no interest was taken in cutaneous affections in America. In fact, as Duhring tells us, a disposition existed to consign the whole of this branch of medicine to those outside the professional pale. No one seemed prepared to take up the matter. In 1845 appeared the first American work on dermatology, "A Synopsis of the Symptoms, Diagnosis and Treatment of the more Common and Important Diseases of the Skin," by N. Worcester, Professor of Physical Diagnosis and General Pathology in the Medical School of Cleveland. The book is described by Duhring as being little more than a compilation from the works of the French and English dermatologists of the day. In 1838 an infirmary for diseases of the skin was opened in New York, being the first institution of the kind established in the United States, and lectures on skin diseases were delivered there and afterward in some of the medical schools of New York between the years 1837 and 1854 by Dr. H. D. Bulkley, father of Dr. L. D. Bulkley, whose name is well known to all dermatologists.

At this time Paris was the center of the dermatologic world, and American students accordingly went there for instruction in the subject. Hence for many years American dermatology was the direct offspring of the French school, the influence of which was only slightly tempered by reprints of the works of Wilson and other English writers. At a later period Americans flocked to Vienna, and on returning home spread the doctrines of Hebra among their countrymen. As early as 1859 Hebra's teaching was made known in America by Prof. James C. White, who two years later gave the first course of lectures on diseases of the skin at Harvard. After the Civil War clinical lectureships on the subject were established in several important schools. In 1870 the foundation of the *American Journal of Syphilography and Dermatology* did something to promote the advancement of the knowledge of skin diseases in America, and the establishment of the American Dermatological Association in 1877 gave a powerful impulse in the same direction, which was further aided by the creation of the *Archives of Dermatology*. Yet in 1871 Professor White complained that as yet America had contributed little to dermatology, and that this branch of medicine had hardly then found a place among his countrymen as an acknowledged specialty. Now this reproach has been wiped away, and American dermatology represented by Duhring, White, Bulkley and others, is recognized as being in the van of progress.

The fusion of the schools.—Each of the three great schools which helped to lay the foundations of modern dermatology had certain marked characteristics. The English was essentially clinical, using classification only as a practical help in diagnosis. As observed, the French systematized, striding somewhat impatiently over facts to get at general formulas, which though plausible on paper, too often broke down in application. The German was pathologic, giving attention mainly to the mechanism and occasionally taking too little heed of the causes setting it in motion. Much of what was good in each still survived in the cutaneous medicine of the present day.

Now dermatology is truly international, the different schools which were formerly as separate states having become fused into one scientific commonwealth. This has been accomplished by the translation of representative works of each school into the language of the others; by the multiplication of journals devoted to this special branch of medical science in which everything of value that is published in any part of the world is gathered up and summarized; by the facilities of communication which make it easy for the scientific pilgrim to visit every dermatologic shrine where his devotion is likely to be rewarded with knowledge of some new thing; and by congresses, those marts for the exchange of scientific wares which have so powerfully aided in the diffusion of knowledge in the extinction of national jealousies and in the correction of provincial ways of thought.

A man trained in a particular school is apt to be narrow if he knows nothing of any other. In dermatology this kind of narrowness was especially exem-

plified in the French school, but neither of the others was entirely free from it. How slowly the work of even so brilliant a dermatologist as Hebra became known to the profession in other countries at a time comparatively recent is shown by the following passage from Professor White. Speaking of the middle of the fifties he says: "It was not until the intelligence began to spread, slowly borne by word of mouth from country to country, that in an Imperial city of Austria there was a man teaching skin diseases as they had never been taught before, with unlimited means of clinical illustration, with the keenest eye for observation, with an unbounded amount of information drawn from many years of experience, with a self-restraint which no desire for premature fame could tempt into hasty publication, and with a sound and logical mind, that the German school of dermatology some fifteen years ago began to be known and to advance to that pre-eminent position it now holds." Fame flies faster nowadays, but the very ease and rapidity with which the results of a man's work can be made known now lead to the publication of much that is inaccurate observation and immature speculation.

Progress in knowledge.—The most striking feature on the dermatology of today as compared with that of the beginning of the century is the knowledge of the nature and causes of skin diseases that has been gained. Willan and Bateman left little in the way of outward appearances for those who came after them to describe, but no real knowledge of pathologic processes was possible till the microscope and other modern methods of research were applied to the study. This is the special achievement of the German school. The attention directed to processes has led us to recognize that many conditions which used to be looked upon as distinct affections are really different stages in the evolution of one and the same disease. In this way dermatology has been greatly simplified.

Further simplification has resulted from our having learned to distinguish between the primary lesions which are notes of a particular disease and the lesions which result from secondary causes, such as injury from scratching or rubbing and the invasion of pyogenic micro-organisms. Much confusion and needless multiplication of types were caused in former days by mistaking the accidental for the essential in such affections as scabies, eczema, ringworm, impetigo and other conditions liable to complication by suppurative processes.

Pathologic research has done much to elucidate the nature of growths, benign and malignant, of the skin. The work of Jacob Warren, Hutchinson, Dubreuilh and Norman Walker in regard to rodent ulcer, and that of Kaposi in regard to sarcoma of the skin and xeroderma pigmentosum, mark distinct advances.

Real progress in the science of medicine, however, is measured by the increase in our knowledge of the causes of disease. In this respect it may, I think, be said that as much has been done in dermatology as in any branch of medicine. The etiology of a very considerable proportion of skin diseases is now accurately known. Among the causes whose operation has been clearly traced, a prominent place is occupied by inoculable viruses which infect the system, such as syphilis, tuberculosis, leprosy, etc. Ricord, Fournier, Sigmund and Hutchinson have shown how many and various are the cutaneous manifestations of syphilis and with what versatile mimicry it assumes the form of other diseases of the skin. Tuberculosis has been proved to be accountable not only for lupus, but for affections formerly classed under the heads of lichen and erythema and for the other forms of skin disease included under the general term scrofuloderma. The sorting out of the cutaneous affections due to these two causes alone has greatly reduced the region of the unknown in the map of dermatology.

The action of parasites.—Another direction in which the etiology of skin diseases has made decided progress is the recognition of the action of parasites. The idea that scabies is due to the irritation set up in the tissues by the animacule, and ringworm by the growth on the surface of the skin of a vegetable mould, is so familiar to us that it is not easy to realize how recently the truth of these doctrines has been definitely established, and with what incredulity the discoveries were for a long time received. The sarcoptes scabiei had been seen by Avenzoar in the twelfth century and later by Guy de Chauliac, Ambrose Paré and others; and in the seventeenth century it was distinctly indicated as being the cause of itch by Bonomo and Cestoni. It was rediscovered more than once afterward, but it was not till 1834 that Renucci, in Alibert's clinic, was able to show how it could always be found. Yet in 1850 Antony Todd Thomson is allowed to say, without a word of protest from his editor, Parkes, that itch is certainly "the result of a morbid poison, and the fluid of the vesicles or pustules is the agent transmitting the disease," and while awarding Wilson credit for his accurate description of the acarus, Thomson expresses his inability to "accord with him in attributing the disease to that insect." Still later we find a dermatologist like Devergie writing: "The acarus is a morbid product of the itch as the mycoderm is the morbid product of ringworm, as the insect of acne punctata is the morbid product of that disease, as the louse is the morbid product of pediculous prurigo. Ringworm is contagious through the medium of this mycoderm, not only from child to child, but from the head of a child to the bark of certain trees, and the lousy evil from person to person. Ringworm, acne punctata and the lousy evil, do they originate the less spontaneously on that account? The means that we use to destroy the acarus, are they not also suitable for curing the eruption of itch?" The fact that only forty years ago a dermatologist of the first rank could thus in one sweeping anathema condemn root and branch the doctrine of parasitism in skin diseases, is one of the most striking proofs of the youthfulness of scientific dermatology and of the progress which it has made.

The discovery of the vegetable fungi which cause ringworm, favus, tinea versicolor and erythrasma, unlike that of the itch mite, was not made in the Dark Ages, but almost in the full glare of the light of modern science; yet it was received with equally resolute disbelief by some of the leaders in dermatologic Israel.

Bacteria and skin diseases.—The influence of the great revolution in pathology brought about by the discoveries of Pasteur, Koch, and their disciples has been felt in the sphere of dermatology as in other departments of medicine, and we have learned to look for the causes of many diseases in the world of the infinitely little which bacteriology has revealed to us. Already lupus, leprosy, carbuncle, glanders, sycosis, furuncle, impetigo contagiosa have been proved to be the result of the mischievous activity of specific micro-

organisms. It is practically certain that syphilis has a like origin, but the particular microbe responsible for its production is still "wanted" by our scientific police. Eczema is considered by Unna, who has done much for the recent advance of dermatology, to be of microbic origin. A similar causation is assigned to psoriasis, and by others to alopecia areata, acne, and certain forms of erythema. Quite recently Sabouraud has brought forward evidence which he thinks sufficient to prove that seborrhea and common baldness are of the bacterial family of diseases.

Other lines of advance.—The most important has been the increased attention bestowed on the relations of various forms of cutaneous affections to disorders of the nervous system. In this field the most notable workers have been Bärensprung, Weir Mitchell, Morvan, Schwimmer, Radcliffe Crocker, and above all Leloir, whose untimely death was a grievous loss to dermatology. A large number of skin diseases presenting the greatest diversity in their objective features have been shown to be dependent on lesion or functional disorder of some part of the nervous system. Many diseases, such as zoster, erythema, pemphigus, scleroderma, and various forms of cutaneous edema, hemorrhage and ulceration, which used to be called "idiopathic"—the medical equivalent for the "visitation of God" in the simple etiology of the British juryman—are now recognized to be consequences of vasomotor or trophic disturbance. We also know that defective innervation plays a considerable part as a predisposing cause, making the skin less able to resist harmful influences of any kind. In this way nervous disorder comes into play as a definite factor.

Another line along which we have advanced is the establishment of a definite relation between certain constitutional states and affections of the integument. The tendency of the French school to look to the general system for an explanation of every blotch and pimple led them away from the truth, no doubt, even to the invention of a diathesis when one was wanted; but some dermatologists have perhaps now gone a little too far in the opposite direction. It is well that with the all-conquering bacillus on every side extending the boundaries of his empire, we should not forget that other agencies have still to be taken into account.

The influence of auto-intoxication requires to be more thoroughly studied than it has yet been; the effects of ptomains should also be fully investigated. The serum treatment which is now being tried in diphtheria and other diseases is making us familiar with toxin rashes.

Progress in power.—Progress has been made in three ways: 1, We have got rid of some superstitions; 2, we know better where to direct our attack; 3, we have more effective weapons.

Among the superstitions that hindered progress one of the most pernicious was the notion that skin disease was a natural issue for the escape of peccant humors—a safety-valve for the constitution. Hence in many forms of skin affection, and particularly in the case of eczema, it was believed to be dangerous to cure the cutaneous lesions, because the disease was thus "driven in" upon the internal organs.

Increased precision in the direction of attack naturally arises from increase of knowledge as to the nature and especially as to the causation, of cutaneous affections. Nowadays we at least do not, as Archbishop Whately said of the common run of preachers, "aim at nothing and hit it." The polypharmacy in which the older school of dermatologists delighted is almost a thing of the past, and patients are not physicked in the wholesale and indiscriminate manner that used to be thought necessary for the correction of their constitutional depravity. Internal medication is used only in response to definite indications, and we work the "miracle of cure," to use a too celebrated phrase, with the help of a simpler, pleasanter and more efficient pharmacy.

The administration of remedies by hypodermic injection may be mentioned as one of the most promising improvements in constitutional therapeusis; the use of mercury in this way in syphilis is becoming more and more common. The serum treatment has not yet established itself in dermatologic practice, but good results from it have been reported in a few cases of syphilis, lupus, leprosy, and one or two other affections. Tuberculin as first prepared by Koch has in my own hands and in those of some other observers, proved of distinct use as a preliminary to surgical treatment in lupus. The newer tuberculin gives promise of much greater usefulness, but it is too soon yet to pronounce a definitive judgment as to its real efficacy. Thyroid extract has a powerful immediate effect on the integument, but my own experience does not lead me to attach much value to it as a remedy in skin disease, and that opinion is confirmed by the experience of several other dermatologists.

But it is in our means of local treatment that the improvement of our weapons is most marked. The application of the parasitic doctrine to skin diseases has led to the introduction of a large and constantly increasing list of parasiticides; in carbolic acid, boric acid, salicylic acid, resorcin, creolin, thymol, salol, dermatol, ichthyol, chrysarobin, to mention only a few, we have powerful agents that the mid-century dermatologists knew not of. Then both the preparations and the methods of applying them are cleanlier and more effective. The pastes, plaster mulls, varnishes, soaps, sticks, and other devices for the application of remedies which we owe to the ingenuity of Pick, Unna, Lassar, Brooke, and others have revolutionized the local treatment of skin disease. Our surgical methods and appliances, our antiseptics, our cauteries, etc., are also immensely superior to those in use twenty years ago.

We are altogether milder in our methods than the dermatologists of a former day; we soothe instead of irritating; we strengthen instead of depleting; we leave Nature to herself instead of thwarting and teasing her into active rebellion.

The future of dermatology.—Whether the newer medication with serums and organic extracts holds in it much promise for the treatment of skin disease it is of course impossible to say; I am, however, inclined to think that in this direction, and in that of increase of power of dealing with parasitic affections lies the path of development in dermatologic therapeutics likely to lead to the best results. It will be long before a complete classification of diseases of the skin is possible, but this is of no great practical importance. A real stumbling block, however, is the confusion of terminology that still exists: It would be a very real help to progress if a nomenclature at once simple, precise and yet descriptive, and international could be devised.

ORIGINAL ARTICLES.

LIGATION OF THE COMMON CAROTID ARTERY FOR TRIFACIAL NEURALGIA WITH EXPERIMENTS AND OBSERVATIONS UPON DOGS.

Presented to the Section on Surgery and Anatomy at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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The frequency, severity and want of remedial relief from trifacial neuralgia has prompted a most extended research, not only into the literature but also the pathologic conditions of the minute structures involved, as determined from an experimental point of view; and as a report of the case operated upon by myself in July, 1896, was made within several weeks of the operation, I will make but casual mention of the condition found within those few weeks. It is, however, gratifying to state that the good results derived from that operation have been permanent.

Before entering upon the experimental feature it is necessary to understand that the anatomy of the dog is practically the same as that of the human being. Especially is this so in reference to the arterial and nervous system of the head and neck, and even the sympathetic system in this region is but little, if at all, dissimilar to that in man. Literature is not wanting in evidence that the common carotid artery may be ligated in almost any pathologic condition with impunity, but recorded observations are few concerning this procedure as a means of relieving neuralgia of the fifth nerve.

English, German and French investigators have each contributed comments that are highly interesting.

Trousseau did the operation, but Nussbaum was the first, losing the case on the third day by hemorrhage, while *case 2.*—(March 9, 1862, F., aged 22), recovered with slight paresis in the affected side, which disappeared on the fourth day with return of pulsation; he does not say whether this case again experienced pain.

Case 3.—Male aged 40 years, duration many years, was operated on October 30, 1862. Stupor lasted for eight days, then sudden return to consciousness without pain. Complete paralysis occurred on the side operated on within twelve hours, lasting four weeks, when sensation returned, followed slowly by motion, relief from pain being constant.

Case 4.—F., aged 38 years, duration nine years, had operation November 8, 1862; no result.

Case 5.—F., aged 60 years, was of several years' duration. Various other operations had been made. Ligation resulted in cure. Atheroma at bifurcation.

Case 7.—Female, five children, operation September 14, 1865. Cured. Died 1876; no return.

Case 8.—Male, aged 45 years, ten years' duration. Ligation June 30, 1877. This is the third time this case has been reported cured (Fowler).

Case 9.—Male, aged 41 years, operation keratitis; lost eye.

Case 10.—Young, hyperemia of side of face. Ligation; instant relief. No recurrence sixteen years later.

Case 11.—Female, aged 32 years, right side, hyperemia of face and scalp; ligation; immediate and permanent cure.

Case 12.—F., aged 63 years; ligation; cure.

Case 13.—Only temporary relief even after dividing nerve at foramen rotundum.

Case 14.—Male, relief eleven months, then divided at foramen rotundum with complete cure.

Case 15.—A monk, eight years' duration, hyperemia and burning right side of face, head and neck. Died with erysipelas.

Case 16.—Male, aged 49 years, thirty years' duration; ligation; no relief.

Case 17.—Male, aged 64 years. Ligation, then neurectomy of inferior dental nerve; permanent cure.

Case 18.—Parotid tumor removed without relief. The scar pressure gave occasional relief. Ligation of common carotid gave complete cure.

The ophthalmic is the branch most frequently the seat of pain, and the superior maxillary next in frequency. The origin may be either central or peripheral or both.

Causes.—While anemia has been ascribed as being perhaps the most common factor in producing pain in this lot of nerves as in others, it must be remembered that any degree of anemia from any cause may exist without pain in any part of the body. Congestion is also a most potent factor in causing pain, and why not in connection with this ganglion and its branches? The right ganglion is the most frequently affected.

These conclusions are derived from my personal observations. However, there are no apparent reasons why one should be affected more frequently than the other, their anatomic relations being identical.

The first branch passes through a bony canal, and makes its exit through a hole or fissure, which fact creates a reasonable probability that the channel may often be narrowed by exostoses or thickening of the periosteum, either of which would cause pain. To meningeal adhesions it is also an easy matter to assign the cause of trifacial neuralgia, and especially may this be so in circumscribed meningitis about the ganglion. Lying as it does between the dura and the bony ridge and the petrous bone beneath the dura, it is readily conceived that adhesions to the dura or adhesions of the dura to the bone would probably produce pain. Then, too, the weight of the brain pressing upon the ganglion which rests upon a bony foundation, may be found to add to the environments conducive to pain. This is the only ganglion which rests upon bone. Middle ear inflammation and fracture of bones associated with the ganglion and nerves may produce either anemia or congestion sufficient to give rise to pain.

Experiments and operations on dogs.—Assisted by Drs. P. C. Logue and P. M. Ashburn. Before entering upon these cases it may be well to give a brief description of the vessels and nerves in the neck, head and face of the dog.

The analogy existing between man and dog as respects these structures is very striking indeed. The carotid artery in the right side arises from the innominate, and on the left side from the arch of the aorta as in the human subject, and pursues a very similar course, inclosed in its sheath and accompanied by the internal jugular vein and pneumogastric nerve. The size of the vessel is very much smaller in proportion to the size of the animal possessing it than would be expected, and bifurcation takes place at a much higher level than in man. After division the external carotid gives off its branches, position and distribution very similar to the external carotid in man. The internal carotid is also given off at a higher level and appears more as a branch of the external carotid than as a bifurcation of that vessel. It arises from the external carotid at about the level of the hyoid bone, and after passing upward and backward deeply seated beneath the muscles of the neck, enters the carotid canal in the petrous portion of the temporal bone to reach the cranial cavity. The only portion of the vessel that is of very great interest as respects these experiments is the intracranial portion. After entrance into the cranial cavity the artery passes close to the inner side of and below the Gasserian ganglion, giving off one or two and in some cases three delicate twigs to sup-

ply it. The middle meningeal branch of the internal maxillary also passes to the inner side of the ganglion and supplies it with arterial blood.

After ligation of the common carotid artery it was hoped that there would be some possible diminution in the size of the vessels, especially those supplying the ganglion above the point of ligation, but this was only apparent in two cases out of the six operated on.

Enough has been said about the gross anatomy of the arteries, and with a brief description of the fifth nerve and its ganglion, I will close this part of the subject. The origin, course, division and distribution of the fifth nerve in the dog is so very like that in man that only light mention will be made of it. The deep portion of the nerve passes over the superior border of the apex of the petrous bone to form the Gasserian ganglion, after which the three branches are given off and make their exit from the skull through their respective foramina. The Gasserian ganglion lies at the apex of the petrous bone on its anterior surface external to the dura and is exceedingly large, even in dogs of small size.

The technique of the operation was as follows: After etherization (dogs tolerate this anesthetic much better than chloroform) an incision was made in the line of the common carotid, the sternoclidomastoid muscle affording an easy guide to the position of the vessel. After exposure the artery was ligated with silk-worm gut and the skin incision closed by a running suture of the same material. No antiseptic precautions were taken, and in all cases primary union was secured. Apparently the animals suffered but the slightest shock from the operation, as they were up and about a few moments afterward. The time they were allowed to live after the ligation varied from two to eight weeks. The injection used for dissection, with a few modifications by Dr. Layne, my house surgeon, who made the dissections, was given me by Professor Lewis, Professor of Anatomy in the Cincinnati College of Medicine and Surgery, to whom I am indebted for this valuable and novel procedure. The basis of the injection is ordinary corn starch in the proportion of a pound of starch to a pint of water, to which is added anilin in sufficient quantity to give the desired tint. Instead of using water alone, alcohol and water in equal parts was substituted and found to be more efficacious, as the alcohol does away with the necessity of a preservative and it is also possible to throw a larger quantity into the vessels and thereby secure a more perfect injection of the subject. The alcohol is taken up much more quickly by the tissues than is the water, and in a very short time (ten minutes) the starch has hardened sufficiently for work. The injection secured by this method is the best I know of, the smallest capillaries being readily permeated by the fluid starch, an end which is not easily attained with parafin, wax, etc. Dissection was begun as soon as the injection had hardened, and the following observations noted:

Experiment 1.—Ligation of the common carotid of two weeks' duration; vessel obliterated for a short distance above and below the ligation, no apparent alteration in size of trunk or branches above this point: brain beautifully injected on both sides.

Experiment 2.—Dissection at the end of three weeks; vessel occluded at point of ligation; no change different from Case 1.

Experiment 3.—Dissection on the twenty-fifth day; no noticeable alteration in size of vessel above point of occlusion.

Experiment 4.—Dissection on the thirtieth day; vessels on the side opposite the ligation manifestly enlarged, especially the infra-orbital branch of the internal maxillary.

Experiment 5.—Dissection at the end of the fifth week. No perceptible change in the size of the vessels on either side.

Experiment 6.—Dissection at end of eighth week; vessels on opposite side of ligation perceptibly enlarged.

It will be seen that nothing of value in so far as diminution of the size of the vessel is concerned was gained from the above experiment. This must be attributed to the free anastomosis that exists both inside and outside the cranial cavity in the dog. It was found that after ligation of both common carotid arteries the brain could be perfectly injected, the fluid readily passing through the cerebral arteries. The starvation theory is therefore not tenable, and something else must be sought as the cause of cure after ligation of the common carotid artery.

The microscopic examination of the ganglion of Gassa was made by Dr. D. I. Wolfstein, who writes the following:

May 30, 1897.

Dear Dr. Ricketts:—The specimens you gave me to examine, in which you wish to know whether there was any evidence of structural change or any difference in the appearances, were duly stained. The specimens were the Gasserian ganglia, the presumably abnormal one being tied with a piece of string. They were stained both with thionin and with hematoxylin and both showed perfectly normal ganglion cells. With thionin, the usual beautiful differention of chromato- and achromatophilic substance seemed identical in both. I am unable to find any difference whatever. D. I. WOLFSTEIN.

Conclusions.—1. Ligation of the common carotid without pathologic conditions is attended with but little danger.

2. It is safer, more certain and attended with fewer serious consequences than any of the intercranial operations for trifacial neuralgia.

3. The causes seem to be either congestion or anemia.

4. When congestion, the relief is more certain by ligation.

5. The close proximity of the ganglion to the bone upon which it rests, and the weight of the brain upon it, together with localized meningitis, seem to explain in some degree the causes of anemia and congestion of the ganglion.

6. Cell structure of the ganglion is not changed by ligation of the carotid artery, and therefore can not be ascribed as the cause of relief from pain.

7. As the size of the blood vessels on the side ligated do not seem to be lessened at the end of eight weeks, the cause of relief evidently lies in the fact that the tension of blood is much lessened. The lessening of arterial tension in any congested area gives relief, and why not in this instance?

8. However uncertain the cause of pain or its relief may be, ligation of the common carotid for trifacial neuralgia is an established operation.

ON THE LOCAL ABSTRACTION OF BLOOD IN THE ARTHROSES OF THE EXTREMITIES.

Abstract of paper read in the Surgical Section at the Twelfth International Medical Congress, at Moscow, Russia, August 21, 1897.

BY THOMAS H. MANLEY, M.D.

PROFESSOR OF SURGERY IN THE NEW YORK CLINICAL SCHOOL OF MEDICINE, NEW YORK.

In a considereble number of joint lesions of the extremities dependent on trauma or various pathologic conditions, our resources are often taxed in an endeavor not only to relieve our patient as promptly as possible, but also to restore the full functional use of

the limb. It is our aim, further, in our management of the case to be quite certain, whatever we do, not to leave a condition possibly worse than what we find.

Of late years the shibboleth has been "*rest, rest,*" immobilization and fixation, or the free and almost indiscriminate employment of the scalpel.

Rest, or the support of an injured joint is indispensable in a considerable number, but as the panacea some would have us believe, it is a fallacy. By surgical operations, the aid of anesthetics and aseptics very many limbs and lives have been saved which formerly were lost, though even here every unbiased observer must admit there is altogether too much cutting being done for joint lesions.

Our great aim in treatment should be to attempt the arrest of morbid processes before they have advanced to the point of destruction, or in other words, at an early date apply energetic prophylactic measures.

Among those in my own experience there is no single remedy so prompt, positive and potent in action as the local abstraction of blood, either by acupuncture, leeching, scarification or deep puncture.

Fashion rules in medicine as in the social world. Hahnemannism and the homeopathic school came and blood-letting went; not only that for constitutional maladies, but every phase of disease, so that it is difficult today to find a recent graduate in medicine capable of performing phlebotomy or wet-cupping a patient.

In order to recognize the class of cases appropriate for local depletion and have a proper appreciation of the morbid condition existing, a familiarity with the various pathologic phases of the lesion is necessary.

It is furthermore important to always bear in mind the fact that various states of the constitution influence local joint inflammation, which will early yield after those have been treated.

It may be briefly stated that the class of cases most appropriate for local exsanguination is that succeeding injury of the joints, those in which recovery is retarded by a hysteric element and many other conditions by no means well understood, nor is it necessary to employ it until other palliative measures have been thoroughly tested. It is immaterial whether inflammation be present or not. In fact, in some of the most rebellious cases the source of the greatest pain and degree of infirmity are in those joints entirely devoid of evidence of the presence of inflammation, nor is it any consideration whether the patient is anemic or plethoric. In the local abstraction of blood but a small quantity is removed. In any event what our patient in most cases needs is not more blood, but better. Relief from apprehension, restoration of sleep and use of the limb will soon stimulate nutritive energy of the system into renewed action. And furthermore, it is a well-known physiologic fact that the vessels always carry a surplus of blood, which if not discharged excessively is very soon regenerated.

Mode of procedure.—In all cases, having decided on the vascular depletion of a joint, it must be done thoroughly, with a free and firm hand. In many the leech alone or the scarification suffices, but in severe or chronic cases my own preference is for the long narrow-bladed bistoury, carrying the point down to and through the periosteum, the perichondrium, or even through the capsule. It is only necessary to be aseptic and to clear the main blood trunks. No anesthetic of any description should ever be employed, for the psychologic effects on the sensorium is undoubtedly the most potential element in relief; nor is it desirable to occupy time with detailed preliminaries lest the patient lose heart at the last moment and refuse operation.

By whatever means we proceed precision and rapidity are important. The parts are sensitive and the deep punctures painful, hence the demand for celerity of action. The blood should be permitted to flow as freely as possible and when it ceases simple dressings are to be applied, when the patient should be encouraged to use the limb as freely as possible. In certain cases it may be necessary to repeat the local exsanguination.

It may be remembered that it is only recommended as an adjuvant to other regular systematic treatment, but it is one of the most valuable. One has but to amply test it to be convinced of its efficacy in a class of arthroses often exceedingly trying to the patient and surgeon alike.

While recognizing the salutary influence of affecting the emotions in all cases, especially those in persons of a hysteric tendency, the *rationale* of this procedure may be further explained by the direct effects on the soft parts extrinsic to an articulation. There is generally in the greater number of the most painful cases a congested state of the capillaries, conjoined with a phlebitis which involves the subcutaneous, the subaponeurotic and deeper trunks. In the venous circulation of the extremities all the valves from within open toward the periphery, so that when the reticulated meshwork in the integument is freely opened all the deeper congested vessels are freely drained outward, tension is relieved and large territories of static over-congested vessels emptied.

In some cases wherein all the signs of inflammation are absent, except pain, the dominant pathologic change is evidently in the nerves and the absorbents. We have a multiple neuritis, with muscular spasm and hyperesthesia. In these cases surface or deep scarification with free vascular depletion is a remedy of the highest value.

There is nothing novel in the line of therapy here recommended. It is only a plea for a time-honored powerful remedy, which the writer is old-fashioned enough to recommend and which has no rival. It goes without saying, that all cases must be carefully studied and their nature well understood before submitting them to the plan of treatment described.

The above may not be regarded as progressive science, but we know that of late years the therapy of many infirmities and maladies as laid down by several authors is to do *nothing*, but wait and "*rest.*"

INTERESTING STONE CASES.

BY D. M. B. THOM, M.D.

MARDIN, TURKEY IN ASIA.

Case 192.—An Arab from the Plains, about 55 years of age, came to the hospital April 17, complaining of pain in urinating; had suffered for some time, as many scars of the hot iron over the region of the bladder testified. He was of good build, fairly nourished, but had a terrible dread of the knife, and would not listen to the operation by lithotomy. I explained to him that if the stone was sufficiently friable I could remove it without cutting, provided it was not too large to be grasped by the lithotrite. So on those conditions he became an inmate of the hospital, and the work of crushing began. The stone was found to be very large, but I was able to grasp and crush portions of it. After crushing as much as I thought advisable at one sitting, I proceeded to withdraw the lithotrite (Thompson's), which was accomplished with considerable difficulty, the female blade being so impacted as to make it impossible to

screw the male blade home, causing some laceration of the mucous membrane of the urethra. I also had to enlarge the meatus in order to withdraw the instrument. It caused him but little inconvenience. He was ready for another sitting the second day. He had passed quite a number of pieces, and seemed very much encouraged. We had some five sittings, crushing a tremendous amount of stone, but each time experienced greater trouble in withdrawing the lithotrite, until I suggested completing the operation by lithotomy. He said he could not listen to that; as he was afraid that after cutting he would not be able to do horseback riding again, and that he would go to a friend's house in the city for a few days and see how he felt. That is the last I have seen of him. It is reported by his friend that he passed great quantities of débris, and that he was now fully recovered.

Case 196.—An Arab, about 60 years of age, a tall, lank, lean, gaunt-looking specimen of humanity, ill nourished, but possessing great nerve power and endurance. Some six years ago he presented himself complaining of pain in the bladder and difficulty in urination, but for some reason he disappeared, and did not show himself again until May 20 of this year. On again examining him I found he had a stone of large size. He confessed that he had been troubled with it for twenty years, and there was certainly proof enough over his abdomen that it had been there for some time. From the pubes to the ensiform cartilage there was not a spot as large as a silver dollar that had not been scarred by the red hot iron. He was informed that the stone was large, that its removal would be difficult; but he insisted on saying that it was not large, as he had measured it himself by passing his finger up the rectum. The same day he was examined he was present at an operation where a stone was removed measuring 9x10 centimeters; he said, "Mine is no larger than that." After trying the lithotrite and being unable to get it between the blades, I urged him to allow me to perform the suprapubic operation, but he would not listen to that; so on the following day, after making another ineffectual attempt to grasp and crush it, I cut down through the perineum, entering the bladder, and to my consternation found the organ full, a solid mass, immovable in any direction. My incision was as large as the parts would admit, expecting to meet with a large stone, but not a boulder. I took the large forceps applying it in different ways, hoping I might be able to move it, but to no purpose. I again tried the lithotrite, but the blades would not come near each other. So using the forceps as a fulcrum to press the stone up over the pubes, I cut down in the median line. Coming on the bladder I found it greatly thickened, resembling a muscle rather than the bladder. An incision fully three inches long had to be made before it could be extracted. Much of it was crumbled off in the effort to withdraw it, both above and below, but I succeeded in removing a solid mass weighing 80 drachms, measuring 9.5 by 7.5 inches. Fully 20 drachms of it was thus lost, so that we had the stone lying in the bladder, before touching it, weighing 12½ ounces. The upper wound was closed in the usual way, leaving the lower to do the draining, which to my mind, was what saved him, he being in the balance for a day or two. He began to show signs of gaining, and made a fairly good recovery, leaving the Hospital March 22 with only a small opening in the lower wound, which he had begged of me for a number of days to sew up as I had done the wound above.

Case 201.—June 19, 1897, a child three years of age was brought, complaining of pain in passing water; he was examined and found to have stone. He was at once operated on, and being anxious to remove the stone without introducing my finger, I entered the bladder all right, grasping the stone, which went to pieces under the forceps, I removed everything I could find with the instrument and washed out the bladder with great care, hoping, yet doubting, that all had been brought away. The child was making a fair recovery, yet the old symptoms were as prominent as ever, so in July he was again brought and examined, and there was stone still remaining. I enlarged the former wound, making it large enough this time to introduce my finger. I found the bladder in the form of an hour glass, with the stone in the upper half. Expanding it with an injection of water, I removed about twice as much as I did the first time, my finger being within the bladder. I could find nothing more, yet he is not free from the old symptoms. It is a nice operation, if the stone can be extracted whole, not to introduce the finger, but when the stone is crushed in the extraction, nothing can give the positive evidence that the bladder is free from all débris but the introduction of the finger.

Case 202.—Our misfortunes, or unfortunate cases, do not look as well in print as the more fortunate and brilliant ones do; but it is through the misfortunes of one that others learn to avoid them, and for that reason it is our duty to give them publicity with the same candor we do our more successful cases. For that reason I will close with two of what I call unfortunate cases. This last case was operated on yesterday, the second of the kind in 202 cases of calculus it has been my fortune—and some of my patients' misfortune—to operate on. A child of three or four years of age, well nourished and in fine health, was brought to the hospital some five or six days ago. The father, who was with him, says that for nearly a year he was troubled by spells of having pain in passing water. I examined him and at once got the click of the stone. Yesterday he came prepared for the operation. The father said that since he was examined he had been free from pain in passing water. On introducing the staff I again got the former click, and making the wound large enough to introduce my finger, imagine my surprise and utter chagrin on exploring the length and breadth of the bladder not to find a stone in it! The case is doing well, but what was it I mistook for a stone?

In looking back through my records I find Case No. 72, aged 3 years, Turk, a very delicate child. In sounding no audible click was heard, and for that reason was removed from the operating table. The symptoms continued the same. The parents insisted on my trying again, which I did, with the same result. The sound seemed to come in contact with something, but getting no clear sound I refused to operate. The child suffered so much from the pressure of water that the father insisted on my operating; I consented, giving it as my opinion that it was unwise to do so. On entering the bladder, no stone could be found! Inflammation set in, carrying off the little fellow in twenty-four hours.

All these, in fact all my operations, are done without any assistance, except as my servants help.

July 8, 1897.

THE TREATMENT OF HEMORRHOIDS BY THE INJECTION METHOD.

Presented to the Section on Surgery and Anatomy, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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PHILADELPHIA, PA.

I am sure that my experience is by no means unique, in that the majority of patients with hemorrhoidal troubles come to me greatly prejudiced against any operative procedure involving the employment of general anesthesia, and especially the use of the knife. These objections have been raised not only by the laity, but also by physicians who have been similarly affected. Such an argument should not and would not prove a factor in altering the character of advice to be given to a patient were I satisfied that only one plan of treatment could effect a cure; but where a choice of several methods exists for effecting the same or similar results it is not only our duty but a necessity for us to respect the patient's wishes.

In a number of instances, sufficient to convince me of the efficacy of the method and to enable me to place my opinion on record, I have treated internal hemorrhoids (in selected cases only) by the injection of carbolic acid. The results obtained in every instance have been entirely satisfactory to patient and myself.

I am thoroughly acquainted with the unsatisfactory experience and the unfavorable opinions expressed regarding this treatment by such authorities as Kelsey of New York, Mathews of Louisville, Ky., Allingham of London, and others of equal eminence, and I am, furthermore, free to confess that for a long time the weight of this evidence deterred me from giving the method a trial. On the other hand, I have diligently perused the literature, past and present, dealing with the other phase of the question, and after reading the excellent treatise on "Hemorrhoids and other Non-

malignant Diseases of the Rectum," by W. P. Agnew, M.D. of San Francisco, I determined to test the merit of the treatment.

External hemorrhoids.—Agnew (*op. cit.*, p. 18) admits that the quickest, neatest, least painful and most desirable way of disposing of any form of external hemorrhoid, cutaneous tag or like redundant tissue is by excision, but employs the carbolic acid injection in those cases in which the patient is averse to being treated by any plan involving the use of the knife or scissors. He claims that this method effects a cure, to which such persons will readily submit, although informed that a longer time is required for the complete eradication of a tumor thus treated and that more pain and inconvenience may be experienced from the effects of the operation than would result from that by excision.

Personally I have had no experience with this method of treating external hemorrhoids, preferring and always advising in operative cases the excision of such tumors.

According to the same authority (*op. cit.*, pp. 22, 23 and 24) and as the result of his observations the objections to the treatment of external hemorrhoids by carbolic acid injection pertain solely to the length of time required for the removal of the tumor, a period of three or four days, and the pain following the injection, which is not intense, but is at times more or less annoying; usually beginning within one or two hours after the operation and continuing for twelve or fourteen. Agnew advises against the employment of this method in the treatment of external hemorrhoids when inflamed and in a highly sensitive state. He especially notes the care that should be taken when operating on these tumors by injection to see that quite a considerable portion of the cutaneous surface, especially at the summit of the pile is affected by the solution applied just beneath the skin, otherwise the skin will become inflamed, in order to let out the interior coagulum, which he has often seen come out in three days, without suppuration or showing the appearance of much moisture and in one unbroken cystic-looking mass. The operation is to be performed with a view of cauterizing all the tissue to be removed, which can be governed only by the dictates of judgment and as a result of experience.

Internal hemorrhoids.—It is to the treatment of internal hemorrhoids by the injection of carbolic acid that I wish especially to invite your attention in the hope of eliciting a free discussion as to its merits or demerits based upon the actual experiences of those who have given the method a fair trial.

Formula.—The formula which I use is the one advocated by Agnew, and the method of its preparation is best detailed by a verbatim description as given in Dr. Agnew's work on diseases of the rectum (*op. cit.*, pp. 35 and 36):

"The solution of carbolic acid found to be uniformly successful in the treatment of hemorrhoids is prepared by first making a solution of the acetate of lead and borax in glycerin in the proportion of two drams each of the chemically pure salts to one ounce of Price's glycerin:

R Plumbi acetat.
sodii biborat. . . . . āā ʒ ij 8.00
Glycerinæ . . . . . fl. ʒ j 32.00

"Mix in a graduate, pour into a two-ounce vial, and let it stand for twenty-four hours. The solution of the salts is hastened by placing the vial in a warm water bath and allowing it to remain there for fifteen or twenty minutes. The glycerin can be handled to a better advantage and its measurements more accurately made and retained by warming it as well as the graduate before it has been poured into the graduate and the chemicals have been added.

"Select Calvert's No. 1 crystallized carbolic acid and pour a sufficient quantity, liquefied by warmth, into a two-ounce graduate to measure one ounce and add two drams of distilled water. To this add enough of the glycerid of lead and borax previously made to make the combination measure exactly two ounces.

R Acid carbolic (crys.) . . . . . ʒ j 32.00
Aquæ destillat . . . . . fl. ʒ ij 8.00
Sodii biborat. et plumbi acetat. et glycerin. fl. ʒ vj 24.00
Misce et sig. Solution for hemorrhoids.

"The object of the formula is to lessen the syrup-like consistency of the preparation. Should equal parts of crystallized carbolic acid and the glycerid of lead and borax be combined, the solution will be found rather too heavy for convenience. It will not flow through the hemorrhoidal needle as freely nor take hold of the tissues when injected as quickly as does a solution containing a small proportion of water. Be particular in the weights and measurements and the purity of the ingredients entering into this preparation, as anything unnecessarily irritating should be scrupulously avoided. I have tried synthetic carbolic acid and found the odor of tar to be decidedly stronger, and believe it to be much more acrid and irritating than the commoner preparations; neither can I see that anything is gained in using vegetable glycerin.

"Some make no allowance in attempting to give the formula, for the increase in bulk of the glycerin occasioned by the addition of the one-half ounce of solids, and direct that the ounce of carbolic acid be added to the full amount of the glycerid of lead and borax when made. By this inadvertence not much over a 35 per cent. solution of carbolic acid is obtained. After trying the acid in varying strengths and watching its effects, I have concluded that not less than a 50 per cent. solution should be used. The addition to the solution of the acetate of lead is designed to restrict the action, and that of the borax to lessen the irritative properties of the acid. The acetate of lead not only keeps within limit the distribution of the acid at the time the solution is forced out of the hypodermic syringe, but of itself combines with a certain portion of the albumin of the blood and other tissues, forming the albuminate of lead. If I were to make a change in the formula it would be toward an increase rather than a diminution of the quantity of acid."

Preparatory treatment.—This includes a careful study of the patient's physical condition. I would advise against the employment of the injection treatment in cases predisposed to phthisis or already affected by this disease, and in diabetes or in chronic diseases of the liver, heart or kidneys.

During an acute inflammatory attack of hemorrhoids is not a favorable time to operate, on account of the engorged condition of the rectal vessels, and the irritability of the mucous membrane of the bowel. Such conditions should be relieved by local medication and by remedies directed toward regulating the bowels and increasing the activity of the liver.

Operation.—At the time of operation the hemorrhoids are exposed by inducing the patient to have a stool or to sit over hot water.

It is advisable to smear vaselin over the mucocutaneous surfaces prior to operating, as advised by Agnew (*op. cit.*, p. 34), in order to prevent the solution used for the injection coming in contact with the parts.

The patient should be placed in Sims' position and the hemorrhoid being sufficiently well exposed, it is be punctured at its most accessible point, preferably about midway between its base and apex, and the point of the needle passed to about the center of the growth. Care must be exercised that the needle's point is inserted beyond the proximal end of its opening, as otherwise the preparation will be injected on the outside of the tumor. In a large growth eight or ten punctures may be found necessary.

The injection is to be inserted slowly, several drops at first, then drop by drop, watching the action of the solution as shown by the change of color that creeps over the surface of the pile. This change of color, Agnew states, is quite marked with hemorrhoids of a delicate coloring, less so with those possessed of more fibrous coats. The needle should be held in position for a short time, and if the quantity injected appears to be less than needed, more of the solution should be used. Agnew states that the solution takes effect slowly by virtue of its astringency and syrup-like consistency, and no doubt extends some farther than is always apparent at the time of operating. If the hemorrhoid be large and its cavities filled with blood exhibiting strong arterial pressure, more time will be occupied in performing the operation than is generally supposed, as many as twenty or thirty minutes occasionally being required. The time is taken up in such cases, by holding the needle in place until assured that sufficient of the solution has been used to effect the desired result. If the part feels doughy or springs up under the finger like an elastic ball when pressed, or blood flows freely through the place of puncture after the needle has been withdrawn, either enough time has not been allowed for the preparation to take effect or a sufficient quantity has not been injected.

After the entire cavity of the tumor has been thoroughly reached by the injection, and in a large tumor, a few drops have been deposited on the surface of the pile, so as to be sure of thoroughly cauterizing the more dense tissue of the integument, which Agnew states might otherwise inflame and create unnecessary pain and suffering, the hemorrhoid is to be thoroughly dried and covered with carbolized vaselin and returned within the bowel. Several tumors may be treated in this manner at one operation and I have seen no bad results ensue, although I have used several drams of the solution in a single treatment. No speculum is required, as a rule, in this method of treating hemorrhoids.

The needle required for the hypodermic syringe employed in giving these injections should have a little larger bore than the needle employed for ordinary hypodermic use, so as to permit the fluid to flow through readily, which the smaller needle prevents owing to the consistency of the injection fluid.

After-effects and treatment following operation.—In some cases pain is experienced several hours after the operation, but is usually controlled by suppositories of the aqueous extract of opium, $\frac{1}{4}$ grain, and extract of belladonna, $\frac{1}{8}$ grain, used *pro re nata*. Difficulty in urination may occur and is usually relieved by a hot-water bag applied above the pubes, or by a sitz bath. Catheterization is seldom required. A desire to have the bowels move can be allayed by the use of the suppositories and by hot water compresses applied to the anus.

I do not endeavor to confine the bowels for any definite period after this operation; usually the patient's fear of having a movement effectually restrains such a desire, and on the third day I am in the habit of ordering fractional doses of calomel and soda, followed by a saline. Just preceding the time the bowels act I order a rectal injection of 8 ounces of carbolized oil (2 per cent. carbolic acid) or an injection of slippery-elm tea or of borax water (a dessertspoonful to the pint of water). A peculiar odor sometimes noted when the coagulum is being thrown off, should not be interpreted as indicating suppuration.

Agnew states that to effect a safe, speedy and radical cure of a case of hemorrhoids, it is desirable to get rid of the tumor bodily, not by shrinkage or contraction, leaving a hard or indurated prominence subject to resuscitation and a return of the old malady, nor by inflammatory destruction, but by a separation of the spongy and vascular growth from the normal tissue of the body, the same as if it were dissected from its remotest attachments. This is obtained by putting a sufficient quantity of the preparation recommended just where it is required, and such results will invariably follow. My experience with the treatment thus far leads me to endorse most heartily Dr. Agnew's strong commendation of the method which he has so successfully employed for a long time. Personally, I can not speak authoritatively regarding the permanency of the cure effected by the carbolic acid injection in hemorrhoids, for I have not had an opportunity of observing cases treated by this method for a longer period than two years, but from my observations I am inclined to believe that it is a radical procedure.

Regarding the dangerous results following this treatment—of carbolic acid poisoning, embolism, sloughing and ulceration, or their sequelæ, abscesses or fistulæ, I have not witnessed any such results and am loath to believe that they do occur if the operation be performed carefully and skilfully and with a proper observance of aseptic principles.

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DISCUSSION.

Dr. BROWN of Indian Territory—I have operated on more than one hundred cases. Upon injecting carbolic acid I found the pain was increased, but when we used the chemically pure acid the pain was mitigated more than by any other. We also found that in this way there was no pain after the first few seconds, unless we happened to get the acid around the outside. We have much less chance of its being absorbed. By injecting one hemorrhoid the whole mass will disappear, and one application is usually sufficient. I do not know exactly from what cause these results ensue, but the disappearance of the whole amount of hemorrhoids showed that the acid had been absorbed.

Salicylate of Methyl in Rheumatic Arthropathy.—The benefits of local applications of salicylate of methyl in arthralgia accompanying infective disease have recently been proclaimed, and a similarly beneficial effect has been observed in the arthropathy of subacute or chronic rheumatism after about 3 grams have been applied to the articulation. The secret of success is to enclose the joint afterward hermetically. For this purpose it is laid on a piece of rubber tissue, the salicylate of methyl rubbed in and the rubber tissue drawn up tight around it, enclosing the whole hand or foot as the case may be. Cotton may or may not be used inside.—*Presse Médicale*, July 28.

CICATRICIAL STENOSIS AND VALVE FORMATION AS A CAUSE OF PYLORIC OBSTRUCTION, WITH A REPORT OF FIVE CASES RELIEVED BY OPERATION.

Presented to the Section on Surgery and Anatomy, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

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Non-malignant forms of pyloric obstruction are not infrequent and have, I believe, been commonly confused with cancerous disease and, with some exceptions, allowed to die without surgical intervention.

When the stenosis results from the cicatrization of an ulcer which had existed years previously the patient may be in middle life or later before the obstruction becomes marked and the cachexia of chronic starvation closely simulates that of malignant disease.

Now and then cases operated upon by such masters as Senn, Lange, Weir and others have appeared in American literature. European operators have been more advanced in this respect and have furnished many important contributions to the subject.

Stricture of the pylorus following upon the healing of gastric ulcer is the most common form of non-malignant obstruction and four out of five cases upon which I have operated have been of this variety. The site of previous ulceration in these cases was along the lesser curvature and anterior surface of the stomach, and in two the cicatrix was very extensive, a prolongation extending downward in the the pyloric region and causing great distortion of the canal. In two of the remaining cases the strictured area was narrow and circular in form, one with its origin in a cicatrix along the anterior wall and the other having no apparent cause. In these two cases the dilatation of the stomach was extreme, although the mechanical obstacles to its emptying were not so great as in the three cases in which the scar tissue was more extensive. In one of these two cases the pylorus was held up very high by a short gastrohepatic omentum, and in both cases the downward sagging of the stomach produced a well-marked kinking or valve formation at the pylorus, which evidently was obstructive in its nature.

In a case which died from chronic starvation, supposed to be due to pyloric obstruction of a cancerous form and therefore not subjected to operation, the postmortem showed a large fibrous hypertrophy, such as described by Greig Smith, with obstruction not of a malignant nature.

The pylorus was stenosed, yet not to a marked degree, the strictured portion easily admitting a lead pencil. There was no evidence of previous ulceration. Here again this valve formation was well marked.

Some observation of the two cases operated upon and experiments made with the postmortem findings just referred to leads me to believe that a pylorus somewhat rigidly held upward by a short gastrohepatic omentum, or one in which a certain amount of mechanical obstruction is present will permit sagging of the stomach and valve formation of the pylorus, with consequent obstruction.

It is possible that this condition may exist in many cases of chronic gastric catarrh and dilatation without producing sufficient trouble as to cause death or require operation.

The production of valve formation at the pylorus is similar to the valve formation of the ureter at the pelvis of the kidney as a cause of hydro- and pyonephrosis so graphically portrayed by Christian Fenger.

Enteroptosis favors such obstruction, as the greater the sagging of the intestines and the greater the downward displacement of the stomach the more perfect are the mechanical conditions which tend to valve formation.

One year ago I read a paper before this Section on a similar subject and referred to valve formation as a possible cause of the difficulty at the outlet of the stomach, and I am now still more confirmed in the belief then expressed. It certainly explains many of the changes incident to the causation of obstructive symptoms without previous local disease.

Kussmaul, on the cadaver, has been able to produce a rotation obstruction which is evidently similar in nature. A few cases of congenital stricture have been reported by Landerer and Maier.

It is altogether questionable whether movable kidney can produce mechanicel pyloric obstruction, although this conclusion has been drawn as to the relief of gastric symptoms supposed to be given by nephrorrhaphy in neurasthenic women.

The diagnosis of marked pyloric obstruction and the consequent dilation of the stomach is not difficult, in fact the vomiting of large quantities of ingested material or its removal by the stomach-tube is of itself significant. After inflating the stomach with atmospheric air, by means of an ordinary valve syringe and a stomach-tube, its outline can be rendered evident to the usual methods of physical diagnosis, inspection, palpation, percussion and auscultation. The gastroscope and the gastrodiaphanoscope have little practical value to the surgeon. The differentiation between the malignant and the non-malignant forms of obstruction is often difficult and may be impossible without exploratory incision. The examination of the stomach contents has perhaps some value. When the test meal of Ewald and Boas shows an absence of free hydrochloric acid with Gunsburg's test and at the same develops lactic acid by Uffelmann's method of examination the indications are for cancer; yet prolonged non-malignant obstruction may cause such disease of the mucous membrane as to mislead the observer. In a considerable number of such examinations made for me by Dr. Christopher Graham the conclusions of Rosenheim have usually obtained, but these tests are far from reliable in character and at best are only confirmatory.

In two of my cases of obstruction from former ulceration the cicatricial mass could be plainly felt through the abdominal walls, so much so as to lead to a fear of malignant tumor.

After all, the chief factors in the differential diagnosis will be obtained from a careful examination into the personal history of the patient, especially as to previous ulceration and from the length of time the obstruction has existed. In this respect the occasional cases wherein the scar tissue of previous ulceration has degenerated into malignancy are of interest.

I wish to call attention to the significance of enlarged glands in the greater and lesser omenta as evidence of malignancy.

I have three times seen enlarged glands having all the appearance of malignant disease in non-malignant pyloric obstruction, evidently due to chronic sepsis

from the absorption into the lymphatics of decomposing stomach contents.

Fenger speaks of this septic glandular enlargement about the head of the pancreas in his writing on "The Floating Stone in the Common Duct," as nowise malignant. I have found it in one case in the axilla in a non-malignant tumor of the breast and in the deep lymphatics in a case of sloughing uterine fibroids.

Bull says that 50 per cent. of pyloric cancer cases die of starvation before glandular infection takes place.

Maylard, in his work on "The Surgery of the Alimentary Canal," speaks of the large fibrous stricture of the pylorus as having only fibrous structure, but says that if epithelial elements be found in the enlarged glands malignancy is established. I think that the accuracy of statements as to the absolute malignancy of any case in which the proof is enlarged glands, which have not been microscopically examined, can be questioned.

OPERATIONS FOR THE RELIEF OF PYLORIC OBSTRUCTION

The median abdominal incision between the ensiform cartilage and the umbilicus has proved to be the most satisfactory in giving easy access to the field of operation. This can be enlarged by a transverse cut across the rectus muscle if necessary for free exposure.

FIG. 1 shows the manner in which the first two stitches are applied. The forceps serve as retractors to hold the wound apart as shown in Fig. 2. These stitches are inserted before the incision is made.

Pyloroplasty, devised by Heineke and Mikulicz, is the operation of choice and in narrow strictures is easy and certain in its results. As much of the incision as possible should be in the healthy rather than the scar tissue, as the latter is stiff and does not nicely coapt and has the disadvantage of all scar tissue that necrosis is apt to be the result of the suture pressure. If the contracted portion is very long the duodenum can be folded or knuckled upon the stomach after the *adossement* method of the French authors. This latter plan worked admirably in the second operation on my fifth case. As pyloroplasty can not be readily performed in severe cases in which the scar tissue is very extensive or the pylorus bound down by adhesions to a degree which renders the operation hazardous, the mortality should not be great—about 10 per cent. Out of five cases I was able to do pyloroplasty in only two.

Gastrorrhapy, introduced by Bircher, may be a good operation in valve formation, but cases which are suitable to this procedure could be relieved by pyloroplasty.

Loreta's operation of divulsion has a mortality of 40 per cent. and fails in a large proportion of the cases, making a primary recovery to yield a permanent cure. Greig Smith, however, believes that it has a field in the large fibrous form of obstruction.

Pylorectomy will seldom be done for non-malignant stricture. I can understand how a surgeon could commence a pyloroplasty and finding this method unsuitable be forced to make a pylorectomy as the only way out of the difficulty, but the mortality of 50 per cent. is too high when contrasted with other methods of relief for general adoption. Weir, Meyer and others have done the operation successfully in this class of cases.

Gastro-enterostomy for non-malignant disease is an operation of expediency and not of choice. Circumstances often compel its use, however, as extensive contracture of the pylorus or the presence of tissue unsuitable for the security of suture union.

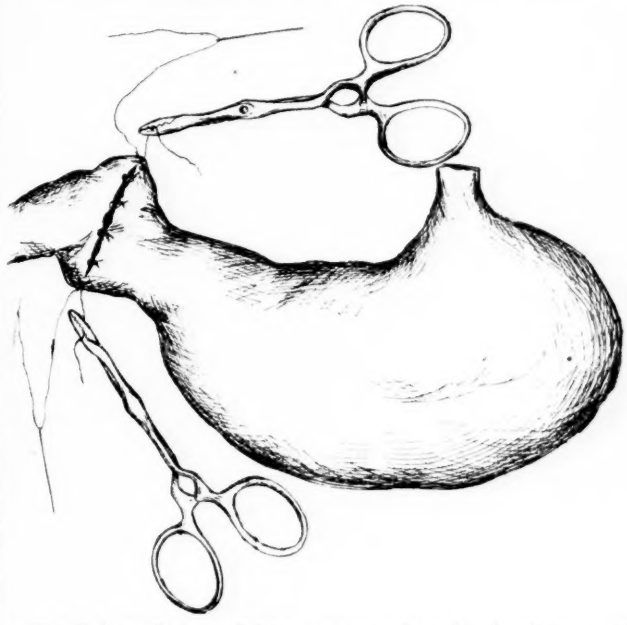

FIG. 2 shows the wound drawn transversely with a few interrupted sutures in place.

Inaccessibility of the field of operation, by reason of the presence of dense adhesions to important structures, is also an important indication. For one or more of these reasons, three of my five cases were relieved by gastro-enterostomy.

This operation by the suture methods, according to McGill, gives about 50 per cent. mortality and, with mechanical aids, about 23 per cent. The best mechanical device is, undoubtedly, the Murphy button. The greatest drawback to its use is the liability of the button dropping backward into the stomach upon separation. This happened in three out of eight gastro-enterostomies which I have made by its use. A year ago I suggested the tying of a string to the intestinal side of the button with the end in a double bow knot eight inches away, thinking that intestinal action at that distance from the site of the adhesions would act as a kite tail guide or tractor. In three

cases the action was admirable. In a fourth case, I regret to say, the button had not appeared when the patient left the hospital and I presume it is in the stomach.

Great care should be exercised to secure the jejunum at its origin and form a coil as close as possible to the proximal end. Rockwitz says that the union should be made so that the intestinal and gastric peristalsis will be in the same direction to prevent impaction of the unused portion of the bowel. Braun advises entero-anastomosis to empty the duodenum more perfectly, and Kocher makes a right-angled attachment of the bowel to the stomach in order that gravity may aid the downward passage of the gastric contents. In all operations in this region the omentum can be readily fastened with a few sutures in such a position as to add greatly to the security of union. The unequal thickness of the stomach and intestine is a source of weakness in this operation.

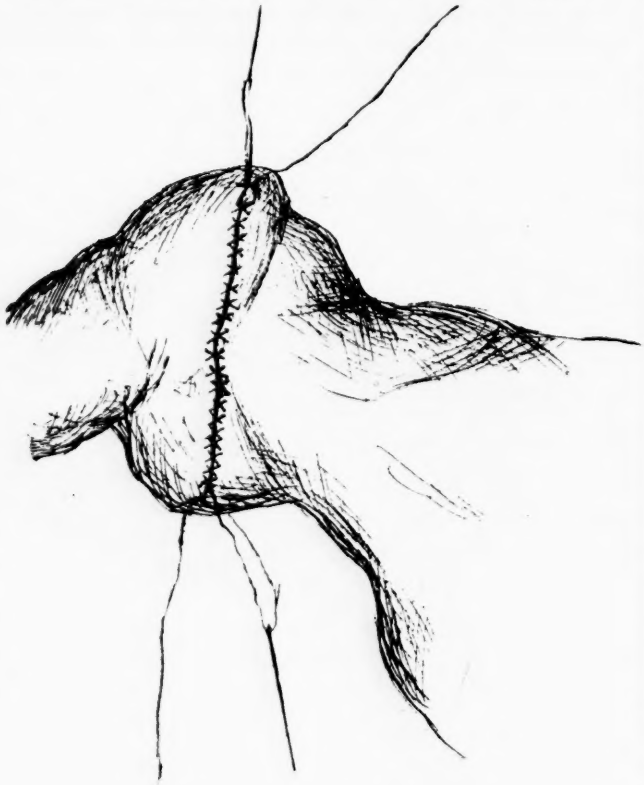

FIG. 3 shows the wound as closed by two rows of continuous Lembert sutures by means of the needles and threads used in the original sutures, the unthreaded end of the sutures having served as retractors as well as for the purpose of indicating the extent of the suturing necessary.

It should be borne in mind that a stomach with a normal capacity of three pints dilated to two or three times this extent at the time of operation, will certainly contract after relief of the obstruction, and that this contraction will effect the opening and correspondingly reduce its size to the same extent, and that such harmful contraction may not necessarily be due to the scar tissue forming the margins of the fistula. In this lies the uncertainty of gastro-enterostomy as a permanent opening.

Taking all of these facts into consideration, the suture method of Wolfler offers the fewest objections, as the opening can be of sufficient length to provide for future contraction and, with the improving technique of modern methods of suturing, the mortality will steadily diminish.

In operations on the stomach the emptying of this viscus should be carefully attended to previous to operation, to prevent contamination of the wound by escaping contents. A preliminary hypodermic of morphia with chloroform anesthesia has, in our hands, best controlled the tendency to retching so annoying in operations of this character. The after-treatment has been simple; morphia, if needed, to prevent peristalsis, and rectal feeding for three or four days, with strychnia hypodermically and stimulants per rectum as needed.

Case 1.—Stricture and valve formation. Pylorplasty.—M. M., male, aged 46, American, admitted to St. Mary's Hospital Jan. 10, 1895, with a history of gastric symptoms extending over a period of seven years. For the past two years he has vomited large quantities of partially digested or decomposing food, once or twice in twenty-four hours. He has grown weaker and lost about one hundred pounds in weight. Early in his illness he vomited blood a few times and suffered severe pain after taking food.

Physical examination.—Patient very much emaciated, heart's action feeble, with dilatation of the right ventricle. With the stomach-tube a large quantity of gastric contents was removed. Dilating the stomach with air, it was found to extend downward and to the left, to a point on a line with the anterior superior spine of the ilium. The pylorus was plainly felt on a level with, and to the right of, the umbilicus. Free hydrochloric acid was present in the test meal.

Operation.—Jan. 13, 1895. A small cicatrix was found on the anterior wall of the pylorus and from this a band encircled the pylorus producing a stenosis of about the caliber of a goose-quill. The sagging of the stomach was very marked, producing a kinking or valve formation just at the stenosed area. Enlarged glands were found in the mesentery, having the usual appearance of malignant disease. Pyloroplasty was done and the patient discharged February 15, cured. When seen six months later he had gained seventy pounds in weight and was doing his work on a farm.

Case 2.—Cicatricial stenosis. Gastro-enterostomy.—W. G., male, aged 53, German, admitted to St. Mary's Hospital May 26, 1896, with a history of ulcer of the stomach which had caused severe trouble for nine years. During this time he had been unable to work and was more or less constantly under treatment. For three years he had been unable to take solid food and at intervals of from eighteen to thirty hours vomited up great quantities of material from his stomach.

Physical examination.—Patient extremely emaciated and so weak as to be unable to walk without assistance. On dilating the stomach with air, it filled almost the whole of the left side of the abdomen. Examinations of stomach contents were contradictory and uncertain. To the right of the umbilicus a thickened area amounting almost to a tumor, could be felt.

Operation.—May 29. A very extensive board like cicatrix was found on the lesser curvature of the stomach and extending into the pyloric region. The strictured area was extensive, bound down by dense adhesions, and showed practically no tissue which would be safe to suture. Gastro-enterostomy was done with a Murphy button and string guide. Button passed on the thirteenth day; patient discharged June 19. When seen two months later he had gained thirty pounds in weight and was completely relieved of his trouble. When seen last (ten months after the operation) patient looked fat and well, but exhibited some symptoms of possible contraction of the opening. Should these symptoms become sufficiently marked I shall enlarge the gastro enterostomy opening, by an operation similar to pyloroplasty.

Case 3.—Cicatricial stenosis. Gastro-enterostomy.—Mrs. J. E., aged 55, Irish, admitted to St. Mary's Hospital July 6, 1896, with a history of chronic stomach trouble extending over a period of fifteen years. She had been unable to eat solid food for several years, and vomited large quantities once or twice in twenty-four hours.

Physical examination.—An enlargement felt to the right of the umbilicus. The abdomen protuberant and distended with gas. On examination this distention found to be due to an enormously dilated stomach. Examination of stomach contents shows free hydrochloric acid, but the tests were not very satisfactory. Patient very much emaciated.

Operation.—July 10, 1896. An extensive cicatrix found on the lesser curvature and in the pyloric region. The pylorus was contracted extensively and felt like cartilage. Enlarged glands were found in the omentum. Extensive adhesions rendered the field inaccessible, and the stiffness and extent of the

stenosis made gastro-enterostomy expedient. This was readily done with the Murphy button. Imperfect preliminary removal of gastric contents made the operation difficult on account of escaping fluids after the stomach was opened. Uneventful recovery with rapid gain in both strength and weight.

Case 4.—Cicatricial stricture. Pyloroplasty.—(Three months after *adossement* for recontraction.) M. St. G., aged 50, Irish, admitted to St. Mary's Hospital Jan. 18, 1897, with a history of chronic gastric disease for twenty years. At times there would be complete relief of symptoms for some months, until about three years ago, since which time he has been in constant distress. He is unable to eat solid food and for a year has vomited a large percentage of the food taken. *Examination.* An emaciated man with a greatly dilated stomach which contained much of the food taken twenty-four hours before. Test meals show free hydrochloric acid. *Operation*, Jan. 21, 1897. A pyloric obstruction due to stricture, having its origin in an ulcer. Adhesions to the liver and gall bladder rendered elevation into the wound difficult. Pyloroplasty was done, some of the sutures being necessarily placed in the scar tissue. Patient discharged in good condition February 15. When seen April 1 he had gained twenty-five pounds in weight and said he could eat anything.

April 15. Was readmitted to hospital suffering from frequent vomiting and symptoms of acute obstruction at the pylorus, which had come on suddenly ten days previously.

April 16. The abdomen was opened in the middle line and as the pyloric mass lay to the right, the rectus muscle on this side was cut across just above the umbilicus, giving free exposure. Adhesions to the gall bladder and liver rendered inspection of the strictured area a matter of great difficulty and during the separation the pylorus at the seat of the stricture was opened widely, one wall being composed of the liver. It could now be seen that the sutures in the scar tissue had given way and adhesions to the liver had prevented leakage at the time, but these adhesions had been largely responsible for the recontraction. A long incision was made with its center at the opening in pylorus and the stomach folded over the nearly immovable duodenum after the fashion of *adossement* as described by Pilcher in his able article on "Fecal Fistula" in the Dennis System of Surgery. Over this the neighboring tissues were carefully drawn. The patient made an uninterrupted recovery.

Case 5.—Stricture and valve formation. Gastro-enterostomy.—B. K., male, aged 44, German, admitted to St. Mary's Hospital March 22, 1897, with a history of stomach trouble for five years during which time he had lost eighty pounds in weight. He does not vomit but for three years has used a stomach tube and removes by this means a large quantity of partially digested food from the stomach once or twice a day. *Examination.* On distending the stomach with air it fills the whole left side of the abdomen and extends across into the right hypochondrium. Test meals show free hpdrochloric acid. *Operation*, March 22, 1897. Pylorus held high by a short gastro-hepatic omentum. A circular stricture and marked valve formation was made out. Enlarged glands were found in the omentum. The field of operation lay well under the liver, in a situation which precluded a safe suture operation. Gastro-enterostomy was done with a Murphy button and string guide. Button had not passed when patient left the hospital April 20, otherwise he had made an uninterrupted recovery with entire relief of symptoms and steady gain in weight and strength.

DISCUSSION.

Dr. J. M. BARTON of Philadelphia—Undoubtedly many patients are perishing from unrecognized pyloric obstruction. As recently as March of this year there was an article in the *Medical Record* mentioning the death of a patient from this condition. One reason for this is that the symptoms and history are misleading. The history should be a history of distinct gastric ulcer or a healed ulcer and then a history of obstruction, but such a history is quite rare. In hunting among the histories of reported cases but few of them have a distinct history of gastric ulcer, but symptoms are usually those of an ordinary dyspepsia. The headache, nausea, acid eructations after the taking of ordinary articles of food, and the sleeplessness and vomiting, which vomiting first occurs after meals and does not call attention to any obstructive symptoms. Ultimately these symptoms glide into symptoms of obstruction. We would expect, where there has been a long history of chronic catarrh, that the symptoms should be divided into two portions, those of obstruction and those associated with dyspepsia. If we operate, the symptoms of obstruction would be relieved, but the other symptoms would continue. I have been surprised to find that immediately after operation the symptoms would disappear. Where the patient is run down and continues to run down we should operate, but there are certain cases in which we should operate at all times. I agree with the reader of the paper as to technique. Owing to the contraction of the stomach the operation may not be of service. The cases in which I have performed dilatation have remained all right for many months, but I do not regard this operation as favorably as I used to. I found that some of my patients had been doing well before I operated on this case, but I have reason to believe that there is a latent obstruction in many cases. In cases where the patients are exhausted I think an operation will do very well. Where the whole ulcer is on one side of the pylorus and the folds of the mucous membrane have come together, if they be separated there is quite a possibility of the case getting well. I remember two cases, one eight years and the other two years ago. These patients had suffered many years, had lavage performed ten years ago and had symptoms of dyspepsia. After operation they made rapid recoveries and were able to eat and digest everything. One patient had no stomach symptoms for seventeen months after operation, but from that time he began to vomit and since then has vomited about ten times. He gained many pounds of flesh after operation but is now losing. His condition is such that if another operation is necessary I shall do pyloroplasty. With regard to the other case on which I operated the patient remained well without further symptoms and gained twenty-two pounds. She was able to act as station agent for four years, but recontraction has now occurred and she is losing weight. I intended to perform another operation but she declined to have it done.

Dr. DONALD MACLEAN of Detroit—Dr. Mayo spoke of the diagnostic value of the microscope as deciding between benign and malignant growths. So far as my experience goes I have come to endorse the opinion, which I heard my old teacher express many years ago, that if you have a tumor you should cut it out, and if it does not come back it is benign, while if it does return it is malignant. I have submitted many tumors to histologists and I have had this sort of experience: "The tumor that you sent me is a round-celled sarcoma, exceedingly malignant and will soon kill your patient." The patient is still alive. On the other hand I have had just the opposite experience. I wish to ask whether there is a microscopic or a histologic standard established now by which we can judge whether a growth is malignant or benign; if so, I would like to know it. I have watched with the intense and critical observation of a father watching his son the work of my former pupil, Dr. Mayo, and I admire it very much indeed.

Dr. JOHN B. MURPHY of Chicago—Just because there is a tumor and some vomiting we are not justified in concluding that the case is one of carcinoma. Even if it kills the patient we are not justified. In a large percentage of cases occurring in people under 40 we find that this induration which is called a malignant tumor is not a carcinoma, and Dr. Mayo's paper brings this point out very well. In the class of cases where malignancy is suspected we must endeavor to make a positive diagnosis by an examination of the contents of the stomach, although even that is not sufficient to justify the diagnosis of carcinoma. The method of operating by Dr. Mayo is the best. Where a pyloroplasty is possible that is the operation to do. If a cicatrix is produced and this operation be rendered impossible we must do a gastro-enterostomy. The contraction will be in proportion to the amount of cicatricial tissue, to the entire size of the stomach and to the area of the sinus which is established. The first is the most important point. We find in anastomosis of the intestines that we have no great degree of cicatricial deposit and, therefore, less cicatricial contraction. The encouragement to operate on these cases in contrast to the very discouraging results produced in malignant disease is something to appreciate. The important point is to make a differential diagnosis. I believe that gastro-enterostomy in malignant disease is being relegated to the past as the mortality is enormous and the improvement very slight. Besides, patients who live through the operation are not benefited much. We have contractions of the stomach which make pyloroplasty impossible. If you examine a gastric ulcer at the end of the third week you will find a thickened mucous membrane in the neighborhood, and this cicatricial tissue is what you must endeavor to avoid in the operation of repair. An operation some distance from the pylorus is the more favorable I think.

Dr. SOMBERGER of New York—It has been said that there is probably a contraction after the operation of gastro-enterostomy and I would like to ask if this has been proven. It seems to me that there is but little more probability of contraction there than in anastomosis of the bowel. The case I will refer to I saw in the Cook County Hospital and Dr. Murphy operated. It was an operation for fecal fistula. In opening the

abdomen the lumen of the bowel was somewhat larger than normal instead of being smaller. If the atrophy caused by this button is such that we do not get contraction by anastomosis, why should we expect to find it?

Dr. A. J. OCHSNER of Chicago—This Section is fortunate in receiving the reports of Dr. Mayo's cases, as he is situated where he can have an enormous amount of material. In many cases the cicatricial stenosis occurring in acute conditions has not been overcome and there is still a certain amount of irritation there which is the cause of considerable tenderness. Whenever there is tenderness over any point of the abdominal cavity the muscles over this point will contract and one will therefore find a distinct tumor in many cases, simply from the contraction of the muscle. In a number of instances I have seen tumors diagnosed absolutely, before the anesthetizing of the patient, which could not be distiguished after the muscles had been relaxed, notwithstanding that the technique of the examination was as perfect as possible. We should not therefore make a positive diagnosis of carcinoma.

SOME ADDITIONAL FACTS RELATING TO SKIN GRAFTING.

Read in the Section on Surgery and Anatomy at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1–4, 1897.

BY Z. J. LUSK, M.D.

WARSAW, N. Y.

At the meeting of the New York State Medical Association, held Oct. 15 and 17, 1896, I read a paper the title of which was "The Vitality of Cutaneous Epithelium After Its Separation from the Body." Believing the subject of great surgical importance, and having additional testimony of interest, I decided to briefly submit my experience at this meeting.

The question of the "limit of vitality" of skin separated from the body has been the subject of a great deal of experimentation. The longest period of which I can find record is ninety-six hours, or four days.[1]

Experiments have been made[2] to ascertain the vitality of skin removed from the cadaver. Skin grafting has been successfully done with epidermis removed from the thigh six hours after death. Skin taken from amputated[3] limbs has been found to make good material. After numerous trials, thirty-six hours was found to be the limit of vitality. These experiments are of importance no farther than demonstrating that cutaneous epithelium possesses great vitality, but beyond this fact, they are of no practical value with "the limit of vitality" terminating at thirty-six or even ninety-six hours.

The cuticle or external layer of the skin removed so that it includes *only* the *epidermis* and *Malpighian* layer is the material used in skin grafting, and I have found that their viability depends not upon the low temperature nor confined air, but *solely* and *absolutely* upon the elimination of all moisture. This discovery renders the foregoing experiments of value, offering a source whence material could be obtained. Great care is, under these circumstances, necessary in separating the cuticle. I would prefer the epidermis obtained by vesication with cantharis to any other method, as the cuticle is more perfectly separated, requiring only from two to four hours, more often about three hours, drying quickly at ordinary temperature after its removal; and if kept free from moisture it will retain its vitality for an indefinite period, being always ready for use. I shall briefly refer to cases of which a full description can be found in various periodicals giving[4] technique, etc., considering in this paper only the dates of operating, illustrating length of time intervening between dates of removal of cuticle and their successful employment in skin-grafting.

An important change in the manner of applying grafts has been made which simplifies the operation and removes the cause which may have led to failure by applying the wrong surface of the graft. Grafts are now applied *dry* and *not moistened* before using on account of the curling up of the edges, making it difficult of planting, failure resulting from applying the wrong surface of graft to granulation. By the method above described, equally good results follow and this danger is avoided. The following cases are given without history or detail, but only to show the date of injury, skin-grafting, and of recovery.

Case 1.—E. S., saltlifter, injured by falling into a pan of boiling brine, Jan. 14, 1895. Nearly eight hundred square inches of raw granulating surface on body. I began skin-grafting February 16, using the dried epidermis, separated by vesication, adhering by one edge to body. He did nicely, whole surface healed and he was able to be up and about by April 1.

Case 2.—M. C., scalded Dec. 3, 1895. December 26 I began skin grafting, using dried skin which had been separated twenty-three days from cutis by vesication. At date of skin-grafting I removed several pieces of the dried skin, placed them between sterilized gauze and borated cotton, careful to note surface, tucked into envelope, labeled with date of separation from cutis, Dec. 3, 1895, and placed in office desk.

Case 3.—F. H., raw granulating surface two by two and one-half inches on dorsal surface of foot. Did skin-grafting with the dried skin which was removed as stated, Dec. 3, 1895; grafts took nicely and patient was up and about February 5.

Case 4.—J. O., switchman, hand crushed between drawheads April 2. Did skin-grafting May 15. There was a large granulating surface on dorsal aspect of right hand. Used same material heretofore described. Development of grafts was vigorous and rapid so that one month later the surface had a good substantial epithelium covering.

Case 5.—July 20, Mrs. S., widow, aged 52, carcinoma of left breast, which was atrophied and adherent, while nipple appeared as if pushed up; it was large and indurated. Commencing above the nipple there was an ulcerated surface extending upward and inward two and one-half inches and one and three-fourths inches. Commenced using mixed toxins with no perceptible change for three months, when she began to improve in general health, gained in flesh and spirits, and by January, 1897, the ulcerated surface appeared more like healthy granulation, and had slightly diminished in size.

On February 9, Dr. Mann assisting, I used the remainder of material separated now over one year, and skin-grafted. Did not disturb proximal dressing for ten days, at which date there was no discharge. Dressings were moistened with balsam, peru mixture and six days later all the dressings were removed. To my surprise grafts had taken well and were doing nicely, except at lower surface where no evidence of epithelium appeared; ten days later, except a surface one-fourth inch square, all was doing nicely and covered with skin, which at each examination appeared more vigorous. About the month of March she was seized with a severe attack of rheumatism and was unable to leave her bed. I was obliged to suspend treatment. Two weeks later, April 1, the lower granulating surface began to extend its boundaries, destroying the new skin.

The longest period that the cuticle has been made to live and grow after removal from the body was ninety-six hours, or four days. This was an experiment made by Georges Martin, who believed that the prolonged vitality was due to the low temperature and confined air at which it was kept. I am of the opinion that its vitality was due to its being dry, or so nearly so as to prevent molecular change.

The cases reported by me show that in case No. 1 the material used had been separated from the cutis forty-eight days. In No. 2 it was separated twenty-three days. In No. 3 the skin was taken from No. 2,

[1] Encyclopedia of Surgery, Vol. i, p. 543.
[2] Medical Record, Vol. xx, p. 110.
[3] Medical Record, Vol. xxi, p. 483.

[4] Medical Record; Journal American Medical Association; International Journal of Surgery.

separated by vesication from scalding, and sterilized on December 26, then covered with borated cotton and laid away in an office desk, when skin-grafting was done Jan. 12, 1896, forty days after separation from the cutis. No. 4 was with the same material, 164 days. No. 5 was the same as No. 3 and 4, grafts revitalized, showing as rapid and vigorous growth as in any of preceding cases, 418 days after its separation from cutis.

To conclude then this method should supersede all others because of the following facts:

1. The surgeon can always have an abundance of material ready for immediate use, and the artificial skin produced is more firm and elastic than that produced by any other method.

2. The cuticle when first removed should be sterilized, when it will soon become dry at ordinary temperature, care being taken to remove all folds or wrinkles and that it be kept entirely free from moisture.

3. The granulating surface should be thoroughly irrigated with warm normal salt or boric acid solution before applying grafts.

4. Grafts should not be moistened before being used, but should be dry, and great care should be taken that the proper surface be applied. Operator catching skin with common artery forceps, a piece can be clipped off one-twelfth inch wide and one inch in length, out of which twelve grafts should be made not more than one-half inch apart.

5. The grafted surface should be covered with sterilized gauze saturated with a mixture of balsam peru and castor oil, one drachm to one ounce, over which should be laid sterilized borated cotton, three to four layers.

6. Proximate dressing should not be disturbed under ten to fifteen days, unless pus is being formed, when it should be removed and carefully irrigated with boric acid solution, and new dressings applied.

DISCUSSION.

Dr. GEORGE M. STERNBERG of Washington—I would like to ask if Dr. Lusk ever used the skin from a blister produced by heat. It is very remarkable that the heat does not destroy the cuticle, and I think it would be important to determine the death point of the epithelial cells. I would suggest that if practicable some one might make this experiment.

Dr. R. H. SAYRE of New York—I am somewhat surprised at the vitality of living tissues exposed to dry hot air. In the treatment of chronic arthritis, in exposing joints to a high grade of air the skin will endure from 350 to 400 degrees F., and I did not suppose this possible. Some persons can not stand more than 180 to 220 degrees. It occasionally happens, however, that after the lapse of a few days you will find ulcerated spots on the skin which look like a blister. Apparently this intense heat will at certain spots cause sloughing of the tissues, which is very slow in regenerating.

Dr. THOMAS H. MANLEY of New York—I hope we do not understand Dr. Lusk to say that this species of grafting was recommended to supplant skin-grafting proper, as this is really epidermal grafting. I presume he intends this method for superficial destruction of the layers of the integument. He would not recommend it, I should think, in that class of cases where the skin is entirely swept away. This method is similar to the Thiersch method and the only questions that will arise are as to how durable it is and as to whether there is any tendency to the scar formation which is so common in the Thiersch method. In parts of the body covered by the garments, where there is not much motion, I can understand that the plan suggested by Dr. Lusk is probably better than any other. It is most extraordinary to conceive of the simplicity of it, and the fact that we are able to keep the tissues so long renders it one of the most valuable methods of skin-grafting that we have. How far can this layer of the epidermis supply this loss of skin is the point. In extensive injuries to limbs there are two important questions: First, what can we do in the destruction of bone; and second, what can we do where there is not much destruction of bone, but there is much destruction of the skin. I would like to ask if, where there has been an extensive area of gangrene of the integument, this method would apply.

Dr. LUSK—Dr. Manley may be right, but his method would be called plastic surgery. In all the works that I have consulted skin-grafting is the only term used. I do not know of any heat that will hurt the skin except the heat that destroys the entire skin, such as boiling in a salt solution. My own experience was with a man who had plunged head first into a bin containing boiling brine. Four weeks after the accident I decided to commence skin-grafting and it was successful in every way. Dr. Roswell Park saw it and paid me a very high compliment for the discovery. The legs, arms, and a part of the body were skinned, and from seven to eight hundred inches were necessary to do the operation. I soaked the material in a peroxid solution and then applied it. So far as cicatricial contraction is concerned there were only a few corrugated bands. There were two ulcers, due to a slough, which healed entirely.

DIAGNOSIS OF MINOR PHYSICAL INJURIES AND THEIR RELATION TO ACCIDENT INSURANCE ASSOCIATIONS (WITH ILLUSTRATIONS OF CASES).

Presented to the Section on Surgery and Anatomy, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

BY LISTON H. MONTGOMERY, M.D.

CHICAGO.

Accident insurance and personal injuries to policy-holders, are subjects to which I have devoted some thought and attention during the past few years, and I am a staunch advocate of the former. As a rule, the reasonableness of its cost should commend itself to every worthy male adult subject who is eligible to avail himself of the privilege of procuring a certificate of membership in some one or more of the various substantial insurance associations throughout the country.

The business of accident insurance companies is mainly conducted by the secretary and a board of directors, and in the matter of claims, by the claims committee aided by the wisdom and advice of the surgeon, the medical director or medical examiner. The office that the surgeon fulfils is a most important one; one whose motive power and influence usually commands great respect from his business associates. To him is oftentimes referred questions that are more or less intricate on account of their not being understood by the board of directors or claims committee, and this, according to my experience, is much more frequently the case when, as the title of this paper suggests, the injuries appear to be trivial or insignificant in character, notwithstanding the report of the attending physician or surgeon would indicate that just the opposite is the case.

Personal injuries are as varied in kind, character and degree as the kaleidoscopic changes in a man's lifetime and the causes producing them are as innumerable as it is possible to imagine. It is not to be wondered at, therefore, if a scientific descriptive report of an injury to a patient by the attending physician should require additional explanation or elucidation by the company's surgeon. In other words, without the aid or advice of a company's medical representative, it would not be possible to adjust and dispose of all cases of bodily injury in a satisfactory manner, and diplomacy of an honorable character is necessary in some instances to achieve this much desired result.

The declaration or blank form of application which

a person is required to fill out before a policy is issued, stating name in full, age, birth-place, residence, occupation, etc., to enable the board or proper officer to decide which class of risk the person shall be placed in, in most instances contains the following: That the policy-holder shall "live up to" or agree to abide by the constitution and by-laws of the association not obligating it to pay for injuries received or which may happen while the policy-holder is under the influence of intoxicating liquors or in consequence thereof; nor where there is no visible mark on his body; nor for intentional injuries inflicted by himself; not while engaged in violating the law; nor from voluntary or involuntary taking of poison or any contact with poisonous substances; nor death due to suicide, whether sane or insane, or due to mental infirmity, hernia, medical or surgical treatment (except amputation of a limb necessitated solely by injuries sustained in accident); and the acceptance of the certificate of membership further absolves the company from being made a party to legal proceedings upon the basis and provisions herein stated, and lastly, the "insured" further agrees that the company's surgeon shall be privileged to make a physical examination of his alleged injuries as often as such official may deem necessary. And yet in the face of all these, and perhaps additional declarations, the policy-holder not infrequently will assail the reputation of our best companies and threaten their extermination by instituting unwarranted legal proceedings, particularly in these days when, singularly enough, cases are known where learned judicial decisions have been handed down which, it appears to me, were either a perversion or a disregard of the contract.

I have selected a few out of the many cases that have been referred to me for examination or which have come under my surveillance during the past year, showing what basis the claimants had to recover indemnity and what some persons actually believed they were entitled to, due to an occurrence, mishap or whatever term one sees fit to name it, even to calling it an accident in all that this term implies, and in none of these cases was there a supicion of any motive of deception being practiced.

The subjoined cases are non-exaggerated instances of descriptive reports from claimants and from very excellent physicians, that I have been called upon to explain for adjustment during the past year, although I disclaim any intention of stating that they were not scientifically accurate so far as diagnosis was concerned.

Mr. D., a resident in one of the suburbs of Chicago, had the misfortune to get his levator labii superioris alæque nasi muscle lacerated by being thrown from his buggy, and as a result was totally disabled for six weeks. Upon visiting this gentleman and carefully reviewing the case, a satisfactory adjustment of ten days was agreed on, inasmuch as no cicatrix or permanent deformity remained.

It may not be devoid of interest to cite the following case for the Section to deliberate and decide whether the injury was occasioned or caused by violent, external and accidental means: A gentleman occupying a chair at his hotel, with his right leg over the left in practically an extended position, smoked and conversed with a fellow-traveler. On attempting to rise from his chair he was suddenly attacked with severe pain in his right knee and could not walk up stairs to his room. He admitted that he had not strained any of the ligaments about his joints nor otherwise injured himself, and claimed never to have had rheumatism; and yet he was totally disabled for a period of seventeen days. This gentleman having been the subject of a similar experience about six months previously I was requested to investigate his case. My diagnosis was "floating bodies in his right knee joint" and that he was not entitled to indemnity according to the rules of the association in which he was insured. He demurred at this and threatened to bring suit against the association. The result was the amount of his claim was paid and his policy was canceled. Recently this gentleman has had a similar attack, just as I expected he would.

Here is another illustration of a so-called personal injury and description of an accident as different from the preceding case as one can well imagine. A gentleman while stopping at a small city in Michigan in July, 1896, proceeded to call on his patrons. He was quite active during the day, as he subsequently stated, and concluded his day's business in apparently his usual excellent state of health. He rested over the Sabbath and attended services at one of the churches. Monday morning at about 7 o'clock, without exertion on his part, while he was arranging his toilet he suddenly began to expectorate blood. During the ensuing four days (up to the following Thursday evening) he experienced not less than five similar attacks of this kind. He returned to Chicago and did not resume traveling for four weeks. He subsequently filed a claim for this period, claiming that his loss of time and total disability was induced by his over-exertion (which he called an accident) on the Saturday previously, or thirty-six to forty hours prior to his first hemorrhage.

The following somewhat unusual case may be deemed of sufficient importance to chronicle in this report, as to the writer's mind it is unique as well as a singular illustration of how the unexpected might happen. A gentleman was ill with indigestion or he had some other form of temporary stomach difficulty. He was being treated by his physician and after three or four days, although attending to his usual vocation, he began to feel the physiologic toxic effects of the remedy he was taking and was obliged to remain at home for another week before complete convalescence was established. This gentleman filed a claim for this length of time, claiming that his total disability was the result purely and simply of an accident.

During the past winter my attention was called to a case of phlegmon or small abscess located under the chin of a gentleman and caused, as the claimant stated, by his barber cutting him while being shaved, when he had as a result, blood poisoning for ten days(?). Upon careful examination it was clearly proved that the gentleman had an inverted or ingrowing hair. A minute pustular eruption had formed, and when the barber had called the attention of his patron to this he was requested to remove the offending hair, as also to evacuate the drop of pus that had been secreted. This slight traumatism resulting in what the attending physician called "sepsis," was the cause of this claimant filing a claim for the above length of time.

Cases of trimming a corn, bunion, wart, etc., have come under my observation within the past year, wherein a form of septicemia resulting in apparent total disability lasting from one to three weeks super-

vened, and the insured filed their claims for these various periods.

On Monday, during one of the early fall months of last year, a gentleman while riding in a railway coach near Clinton, Iowa, was reading his newspaper, holding same in his left hand. Simultaneously he had his right hand resting on the back of the seat in front of him. Suddenly he experienced a stinging or pricking in the dorsum of the little finger of his right hand. He examined his finger, but saw nothing unusual. After vigorously rubbing the spot he again proceeded to read, but the stinging sensation remained unabated (at least for the time being). In a little while he had occasion to look over into the seat on the back of which his hand had previously been resting when he noticed a black spider. He naturally concluded that the spider had stung him, and killed it. He continued to attend to his business until the following Monday morning, one week having elapsed, when his hand began to show evidence of infection. The result was he was totally disabled for ten days.

Cases of lame back due to a strain of some of the tissues about this portion of the body are probably as frequently met with as any other form of bodily injury, and are often puzzling in character, mainly because there is nothing to indicate this, discoloration being absent. No zones of anesthesia, areas of tenderness, hyperesthesia, edema nor other signs of inflammation are present; no constitutional disturbance is present, and other subjective symptoms are normal. Frequently a congeries of symptoms arise, complex in their nature, difficult of diagnosis as well as prognosis and probable duration of disability. Only last month I was summoned to a city some one hundred and sixty-five miles from Chicago to visit a case of this kind, due to an accident which occurred January 4, and was supposed at the time to be of a most trivial character. This case had during the past five months developed through reflex disturbances and other causes of a cognate character, all manner of complications or sequelæ of a most distressing kind, in which may be enumerated dysuria and tenesmus, pleuritic complications, most obstinate constipation, gastric disturbances, paralysis, as well as other cerebral and cerebro-spinal symptoms of the meninges and cord; so that for weeks the patient's life was despaired of. In other words, a diffused traumatic neurosis had followed an apparently slight physical injury.

A case was quite recently referred to me where a sparrow was flying through the air and darted toward a gentleman's face. Its bill came in contact with his left eye resulting in a puncture of the iris. This accident was a most singular one and the traumatism has resulted in multiple neuritis, difficult to prognosticate what the final result may be.

A gentleman, 28 years of age, who had a long-standing hernia and for which he wore a truss, was carrying a box weighing between forty and fifty pounds in an unguarded moment when he omitted to have his truss adjusted. Strangulation ensued. The case was treated during the first few days by taxis, applications of hot fomentations and anodynes, with negative results, and it was found necessary to perform an operation for the radical cure of his malady. He was totally disabled for weeks and filed his claim for this period. The result in this case was a decision that his was not a case for indemnity according to the by-laws of the association in which the gentleman was insured.

Bicycle accidents.—A word in this connection regarding the so-called bicycle accidents, wherein abrasions and contusions of the cuticle and injuries to various parts of the body may occur to a greater or a minor degree. In this connection, I have seen the following case: A cyclist fell from his wheel and sustained a trivial bruise or contusion over the region of the appendix vermiformis. In five or six days active symptoms of the inflammation of the appendix supervened and the gentleman was totally disabled for fifteen days. Naturally enough he attributed his disability to the violent manner in which he was thrown from his wheel, whereas it seemed to me, technically and correctly speaking, that this was coincident or incident to it, as at the time of his mishap the weather was inclement and there was a reasonable doubt that dampness and exposure and even other causes contributed to his attack. Suppose this man had died and an autopsy failed to reveal a foreign body in his vermiform appendix, the chances are that it would have cost the accident association in which he was insured $5,000.

At Oregon, Ill., on March 14, 1897, a gentleman was hunting. The weather was inclement and he wore a pair of rubber boots larger than he was accustomed to, with the result that he produced a minute abrasion on the fourth toe of his right foot. It was proved that the boots he wore were defective and his feet became very damp. What was diagnosed by the attending physician as septicemia supervened and the claimant filed a claim for four weeks' indemnity for total disability, accompanied by an affidavit from his physician, who stated that the abrasion and consequent infection was due to an accident. The claim was rejected.

The subjoined case explains itself as being directly opposite to the foregoing, which I did not personally investigate, though my attention was called to it on account of its recent occurrence and for other reasons. I refer to the noted "sore toe case" wherein it was decided that an accident insurance policy must be paid where death resulted from wearing a tight shoe. A judge of the United States Circuit Court sitting at St. Louis handed down a decision in the case of Smith v. The Western Commercial Travelers' Association (Dec. 16, 1896), giving the benficiary a judgment for $2,165. The plaintiff was the beneficiary and widow of a member of this association holding a policy for $5,000, payable in the event of death by "external violent accidental means." Up to August, 1895, Mr. Smith appeared to have been an exceptionally strong healthy man. About this time he commenced to "break in" a new pair of shoes. The friction caused an abrasion, although, from evidence that he gave, reasonable attention was paid to the inflamed surface; it grew worse, and by September septicemia supervened, and on October 3 he died from the latter cause. According to the learned judge, as the decision was handed down, death was the direct abrasion of the toe caused by the tight shoe, and the conclusion arrived at was that death was occasioned by immediate external, violent and accidental means within the true meaning of the policy, and why a judgment for $2,165 was given instead of for the full amount does not seem to have been explained.

Rules on mosquito bite.—The following is the latest ruling regarding this little animal, handed down by a Frankfort (Ky.) court May 22: The court of appeals in the case of Mrs. S. O. v. The United Stated Mutual

Accident Association, decided that the lower court was wrong and that she was entitled to $5,000, the amount of an accident policy carried by her husband, who died from a mosquito bite which he received while he was asleep; the court holding it to be an accident in the meaning of the law.

The last case that I desire to present may not be regarded as a minor physical injury in the strict sense that is usually implied, as it was a fracture of the left fibula and at the time of its occurrence and for upward of three weeks afterward no one, not even the patient nor his physician, believed but what a perfect cure would follow. On March 4, 1897, a gentlemen, 60 years of age, fell on a slippery sidewalk and fractured his left fibula about three inches above the ankle. It was not a Pott's fracture, and a dislocation or subluxation of the tibia at the ankle joint occurred. This gentleman lived ninety miles from Chicago, whither he was removed the day following his mishap. The fracture was reduced, a substantial plaster-of-paris dressing was applied and the patient progressed favorably until Sunday evening, March 28, twenty-four days after the accident. At about 8 o'clock he was suddenly seized with dyspnea, cold perspiration, flickering pulse, anxious facies; indeed, with all the symptoms of speedy dissolution. The attending physician, who had not deemed it necessary to visit his patient during the preceding three or four days, was summoned and found his patient in collapse. So rapid was his decline that death ensued at 2 o'clock the morning of the 29th. Here is a case where an unlooked-for fatal result occurred to a man who had always been known to be well and healthful, correct in his habits and who, on the Sunday preceding his death, sat up for five or six hours, dressed, reading and conversing with members of his family. He also ate a hearty noonday meal and luncheon at tea time. There was no neurotic or rheumatic history in the case nor anything to lead one to suspect that any pathologic change had occurred in his system, and yet, without apparent cause, this man rapidly sank and died in the manner I have just described. News of his death was telegraphed to the accident association of which I am chief medical examiner, and I visited the man's home and decided that an autopsy was necessary to decide the cause of death. This was held the next morning in the presence of six physicians, the attorney for the beneficiary, the undertaker and the secretary of the association which I represented. Every organ was found to be normal, including bladder, liver, kidneys, suprarenal capsules, mesentery, stomach, gall bladder, intestines, vermiform appendix, lungs, pulmonary vessels, the cavæ, the coronary arteries, the aorta, right and left sides of the heart, including the valves and columnæ carneæ and other structures of the heart; however, when investigating the left ventricle, a white fibrinous clot six inches in length was discovered. This extended up through the ascending aorta, and it was decided by the medical gentlemen present that the cause of death was due to the antemortem clot. No infarct nor embolus within the pulmonary tissue or pulmonary vessels could be detected. We were positive that the clot was antemortem, as it adhered to the papillæ of the tissues of the left ventricle. There was no lesion or anything else pathologic about the heart, except a weakened, flabby and softened condition of the cordæ tendinæ. What relation or connection this form of injury could possibly bear toward the surgical pathologic condition found in the heart of this man, I confess I am not able to explain, unless it was due to the weakened condition of the cordæ tendinæ. The case is now pending an adjustment.

I desire to refer again to so-called floating bodies in joints. Halstead (*Annals of Surgery*, September, 1895) draws the following conclusions:

1. That the etiology of some of these bodies is not fully understood, but that the condition described by König under the name of osteochondritis desiccans explains the most of those that are otherwise found in normal joints.

2. That few, if any, are the direct result of violence.

3. That the most pronounced symptom is the sudden onset of severe pain in the joint with locking of the joint, usually in a nearly extended position; this being followed by acute inflammatory processes in the joint involved.

4. That the lengthening of the femur (in movable bodies in the knee) may occur as a result of irritation produced by the pressure of these bodies.

5. That the only treatment for this condition is their removal by direct incision, preferably under cocain anesthesia, as soon as the diagnosis is made.

In conclusion.—In submitting this imperfect report I disclaim any intention of leaving the impression that in any of these cases was there existing collusion between patient and physician, or any motive of deceptive thought by any of the claimants or on the part of the attending physicians, but I simply wish to point out a few possible errors in judgment that creep in or are likely to do so in slight physical injuries where an accident policy is carried.

DISCUSSION.

Dr. REYBURN of Washington, D. C.—I would like to say a word with regard to physicians who have suffered from septic infection. I had a confinement case and soon afterward developed symptoms of infection which disabled me for seven weeks. The accident insurance company refused remuneration, and I would ask what is the use of physicians insuring in these companies unless they can be paid for expenses of this kind. I would like to ask if accident insurance companies can not be made to pay for accidents of this kind.

Dr. WILLIAM T. BISHOP of Harrisburg, Pa.—I have had experience both ways. One of the most essential difficulties as to an accident policy is the fact that when you eliminate the number of exceptions there is practically no risk left on their part, and they will beat you in every way. There is in many cases an exception in which a medical man can not antagonize the medical men of the country. The company will often find a traumatism which does not exist. We want to reconstruct insurance companies and ourselves. Cases of septic infection should certainly be included, and we should not waste our money in paying for insurance policies if this can not be done. If the medical man of the company was treated more fairly in many cases by medical men it would be beneficial.

Dr. REGINALD H. SAYRE of New York—My experience has been similar to that of Dr. Reyburn. When taking out my policy I asked if I could recover if I should break my arm or leg, and the agent told me that would not count at all as the clause would not operate in such a case. Some time after I broke my thumb and was prevented from operating for several weeks. I suffered pecuniary loss and put in my claim for damages against the company. I received a check for the amount with a letter stating that the company did not wish to insure me in the future. It is true, these companies do not pay claims if they can avoid it.

Dr. W. W. KEEN of Philadelphia—I agree that insurance companies should be liable for septic infection during operations. It is as much an accident as falling from a bicycle, and even more so sometimes by sacrificing life. I have always insisted when taking out a policy that it should cover all cases of septic infection. Sometimes the companies demand a higher rate and I have paid it, although I saw no reason why I should pay it. However, we must be just with the companies and not expect them to do more than they agree.

Some of their policies state that there must be a total disability and they base their rates on this fact. In a case of partial disability we should not expect them to pay the full amount or to hold them liable. We must be just both ways, but I think they are unjust to physicians, and especially surgeons, in demanding an extra rate.

Dr. I. N. QUIMBY—I have been insured in accident companies for some time and I know of one or two New York companies who pay for partial disability. One company paid me one-half the weekly allowance. They make the claim that the physician is guilty of contributory negligence, and this they have no right to do. When they make this claim you can do nothing, for it is practically dishonesty.

Dr. ALLEN of New York City—This question of septic infection should be more understood by the physician. I remember a case of a physician dying from septic poisoning, and the question arose whether or not he had an abrasion on his finger when he operated. There was some doubt about this, but he may have had a hang nail on this finger; and the company would not pay. There was considerable trouble on this point and finally the man was found to have had an abrasion. If it had not been for this fact the company would have paid for the accident. They have a number of fine printed clauses which we do not always read and are therefore not aware of.

Dr. DWIGHT—I am not connected with any accident company, but I do not see why the company should pay in a case of infection. The septic poisoning might just as well have been the result of some internal disturbance and may have resulted from within the mouth. There may be no relationship between the injury and the result, and may not have been due to the operation at all. This matter should be settled in some way satisfactory to the company and the insured.

Dr. L. H. MONTGOMERY—The circumstances alter the case. If there is nothing stated in the policy regarding sepsis, perhaps some companies would succeed in avoiding paying. I know of no company who will not pay indemnity for any accident that results in blood poisoning unless there is a clause inserted against it.

STATE MEDICINE TO THE PRESENT TIME.

Presented to the Section on State Medicine, at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY FRANKLIN STAPLES, M.D.
WINONA, MINN.

State Medicine, the department of science and government pertaining to public sanitation and public health, is a development of modern times, is largely a product of the civilization of the latter half of the present century; yet in its rapid extension it has become nearly universal, has an important place in the state enactments of nearly all nations. Physicians were recognized by law in very early times, and were provided for in the armies and at the courts of kings. In the Middle Ages something was known of medical jurisprudence. Legal medicine is said to have been founded by one Paolo Zachias of Rome, at the beginning of the seventeenth century. What is mentioned as state medicine, taught in the German universities in the eighteenth century, was but the forensic medicine of the times relating to laws in medical jurisprudence. The establishment of state medicine in all countries follows much later than the development of medicine and surgery and the making of physicians.

The principle declared by the fathers of our nation, that life, liberty and the pursuit of happiness are the inalienable rights of all people, and the acknowledged fact that it is the province of government to ensure these rights by suitable laws, are at the foundation of what now exists in this department, as in others pertaining to the welfare of the human race.

The character of the advancement in state medicine and the standards of excellence attained are noticed as indicating the intelligence, culture and good government of a state or country. Greater difficulty has been experienced in some of our States than in others in the establishment of sanitation by law; but for contrasts in sanitary affairs and conditions, the differences between countries must be observed. The difference in government and a reason for want of progress in civilization appear in the following, which is mentioned as an illustrative case: France not long since proposed a reciprocity with Turkey for interchange of vital statistics. Blanks were sent to the heads of departments. One of these went to the Moslem magistrate of old Damascus. The information furnished by the Turk is as follows: 1. "What is the death rate of your city?" *Answer.*—"In Damascus every one must die at the command of Allah. Some die young and some die old, but every one must die." 2. "What is the rate of births?" *Answer.*—"I can not answer this question. Allah knows all that." 3. "How is the supply of drinking water?" *Answer.*—"Since time immemorial nobody died for want of water in the city of Damascus." Concerning the general sanitary condition, the learned magistrate's answer was, "Since Allah sent his prophet, Mohammed, into this world with fire and sword, things are better." This much for a defective civilization of antiquity continuing in modern times. Fortunately, not many such governments have survived to the present time.

The following concerning progress among our States is suggestive of important facts: In a certain State of the interior, the State Board of Health appealed to the legislature for the passage of a better State sanitary law, and addressed to the members a circular letter, from which the following are extracts: "There is annually lost in this State not less than $5,000,000 through unnecessary disease and unnecessary death." The State is urged to save this great annual loss by better sanitary laws properly executed. The circular, in its just and reasonable appeal, further gives the case as follows: "The major portion of the bill proposed has been drawn from the laws of Massachusetts, New York, Michigan and Pennsylvania. These States, through their health laws, have gained much wealth and power. . . . The old law of our State is not up-to-date. It does not take account of recent discoveries in sanitary science, and fails to meet many conditions necessary to accomplish thorough health work. It may be likened to an old, wheezy engine that coughs and groans as it hauls its insignificant load." It is supposed that the legislature came to time with the new law.

The question of first rank among the nations in the matter of state sanitation may be considered. State medicine in England is a little older than is that of the United States; the whole time of the former being a little more and the latter a little less than half a century. Moreover, the English system has an advantage, in that in its management and support it is national rather than local.

The English parliament became informed and interested in the subject of national sanitary improvement in 1844. Laws were passed, and state medicine became and has continued to be an important feature in the government. In the United States, state medicine properly began in the State of Massachusetts with the formation of the State Board of Health in 1869. Eight years were required for the making of the first ten boards in as many States. At the present time there are thirty-eight State boards in the forty-six

States. Laws governing these boards have been largely copied by the different States, but a want of complete uniformity in function and authority among all the States is found to exist. A more complete uniformity and its attendant advantages to the States, would result from the establishment of a National department of public health, with National enactments to which all State laws should conform. State medicine, in many of its features and functions, is necessarily National, and moreover has important relations with matters of international belonging and character. Regulations concerning seaboard notification of contagious diseases, State and seacoast quarantine, sanitation pertaining to railway transportation and laws pertaining to the pollution of streams illustrate, in small part, the many ways in which National rather than State legislation is demanded. A movement is on hand to secure, by international reciprocity, the inspection and detention by quarantine of infected vessels and passengers before the sailing, rather than before the landing on either side of the ocean. A vessel on an ocean voyage, laden with infection of disease, has come to be regarded as too much of a culture-tube for infection, to be a profitable importation to any country.

There has been a varied history in this country concerning the National supervision and control of quarantine, and concerning all that pertains to the general government in matters of public health. National legislation began in 1878. An act of Congress, approved April 29 of that year, conferred upon the Marine-Hospital Service certain duties, principally relating to quarantine against the introduction of contagious diseases into the country. The same year an epidemic of yellow fever occurred. This called general attention to the subject of a National health organization. Epidemics and the coming of pestilence have been useful in causing reforms and bringing to pass important preventive measures. It requires an occasional prevalence of smallpox to make the sale of vaccine virus profitable. At that early day in the history of its good work the American Public Health Association, by its active interest, helped to secure legislation. A bill was passed by Congress, and approved March 3, 1879, which created a National Board of Health. This Board consisted of seven members appointed by the President and confirmed by the Senate, and four members *ex officio*, one from each of the following departments: Medical Departments of the Army and Navy, the Marine-Hospital Service and the Department of Justice.

The Board organized, assigned work in different departments to different members, employed experts to make special investigations and studied conditions along the following lines and others: The collection of information with regard to sanitary condition of cities and towns; on methods of determining the character of organic matter in the air; on the adulteration of food and drugs; on the diseases of food-producing animals; on the flow of sewers in relation to their size and gradients; on the hygiene of the mercantile marine; on the influence of various soils upon sanitation. This was the undertaking, by the government, of practical sanitary work which, having been carried on in different States, has afforded splendid results, the benefit of which the Nation enjoys today.

In the first annual report of the National Board, together with the records of other important work, appears the following: The work of the Havana yellow fever commission; sanitary survey of Memphis, Tenn.; report of diphtheria in northern Vermont; sanitary regulations for quarantine stations, vessels, railroads, etc.

The following was written concerning the National Board in the second year of its existence:[1] "The experience of that season was of immense importance in the future efforts to protect the country from foreign pestilence. It was demonstrated, 1, that National, State and local health authorities could usefully co-operate in suppressing an epidemic, and in preventing its spread from one State into another; 2, that travel and commerce need not be seriously interfered with, provided a vigilant sanitary inspection is maintained." Other conclusions appeared concerning sanitary means for the suppression of yellow fever, in which work the efforts of the Board were largely directed at this time.

The further history of the National Board of Health is in brief as follows: In 1881 there began to be in Congress manifestations of hostility to the Board on the part of some members of the subcommittee on appropriations. The funds of the Board were diminished and made conditional. The end of the work of the Board was now approaching. The final sentence of death was pronounced when, concerning the appropriation made for the use of the Board in 1882, which was called the "epidemic fund," the President informed the Board that he had transferred his "discretion" in the use of the "fund" to the Secretary of the Treasury. An enactment had authorized such a transfer. Transactions of this kind and the necessary results of the same, led a writer in the *Sanitarian* to suggest that the country was in need of *political drainage* as a general sanitary measure.

Since the departure of the National Board, National control has been in the hands of the Marine-Hospital Service in the department of the Treasury. All matters of quarantine are in charge of this office. Reports, foreign and domestic, are made to it, including vital statistics, disease prevalence and weather reports. A weekly bulletin of public health reports is issued and distributed regularly to the health officers throughout the country. There can be no objection to what has been the service of this department in the scope of its work, but it is believed that the great enlargement of sanitary work of late years, and its extension into new fields because of modern discoveries and advances in science, call for the establishment of a National department of state medicine, which shall have for its subdivisions the different State organizations as well as that pertaining to the coast, the ocean and to foreign relations.

It has required less time to advance State medicine, to enact and maintain sanitary laws, and to find support for the same in the State, than it has in the Nation. Political obstacles in the way of what is mainly for the advantage of the whole people, are more and greater in the great country than in the smaller states, and time is required to meet the unworthy, conflicting interests in the larger field; but what is demanded in the majority of the States must eventually obtain in the Nation. There is a community of interests in what pertains to the lives as well as to the property in the common wealth of the Nation.

It is now asked that a National department of pub-

[1] Dr. Stephen Smith in the Sanitarian, December, 1885.

lic health be established, with a secretary of the department, rather than a National board. A committee of the first and second Pan-American Congresses, held in 1893 and 1896, has urged National legislation for the establishment of this department. The AMERICAN MEDICAL ASSOCIATION, through an able committee of sanitarians, has caused a complete bill for this establishment to be placed before Congress. This bill carefully defines the province and duties of the proposed department, and covers the ground of legitimate sanitary work to be undertaken by the general government at the present time. It would seem that a proposed measure of such National importance as is the one in question, should receive the attention and support of the Nation's lawmakers and of the people. The writer desires to be understood as speaking from the standpoint of the State concerning the necessity of National unity and a National head, as an advantage to the individual States in the present of state medicine in this country. The State Board of Health which he has the honor to represent is one of the early State sanitary organizations of the country, and the experience and observation of a quarter of a century have been at least of some value.

Among the functions of a National department of health may be the employment of scientists in the work of investigation in the present advanced work of sanitary science, and to inform State boards and co-operate with the same in practical sanitary work. It may respond to the calls of State boards for special services of experts in emergencies; it may direct in the establishment of new boards in new States and Territories; it would necessarily be the center for the collection and the Nation's school for the use of vital statistics; it would have as a department the whole system of National and interstate quarantine, and from its wide observation and experience, it would be able to advise Congress from time to time as to necessary legislation.

The general outlook may be regarded as satisfactory for the times. More then twenty years ago, when state medicine in this country was younger than it is now, Dr. Henry I. Bowditch, the eminent pioneer sanitarian in Massachusetts and first president of the State Board of Health of that State, spoke in prophetic words as follows: "We stand now at the very dawn of the grandest epoch yet seen in the history of medicine. While philosophically, accurately and with the most minute skill studying, by means of physiology, pathologic anatomy, chemistry, the microscope, and above all by careful observation, the natural history of disease and the effect of remedies, our art at the present time looks still higher, viz.: to the prevention as well as the cure of disease. And this is to be done by sanitary organizations throughout each State and the Nation. The laity and the profession heartily join hands in this noble cause." In this, the year of our Lord 1897, we find ourselves advanced quite near to the fulfilment of these anticipations. A few more State and Territorial organizations and a National department of public health at the head of all, would make the great sanitary working machine of the country quite complete. The modern vantage ground for work is found, among other things, in recent great discoveries in bacteriology, the means of immunization of the body to disease, the prevention of the passage of contagion, the cleansing of life surroundings by fire and water, the abolition so far as possible of disease cause, and the higher education of all the people in the means and conditions of physical life and purity. Well directed and well supported public service along these lines and with these means, belong to the present of state medicine in the United States.

THE PROGRESS OF THE INDIVIDUAL CUP MOVEMENT, ESPECIALLY AMONG CHURCHES.

Presented in the Section on State Medicine, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1–4, 1897.

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"Prove all things; hold fast that which is good," is apostolic advice too often and incorrectly applied to good things that are old; whereas, its obvious application is to things that are new. Not, indeed, should it be inferred that beneficent things ought to be despised, neglected, or indifferently treated because they are old, but, with a growing spirit of liberty and progressiveness of thought and effort so characteristically evident, that all things should be proved, good things should be held fast, while those which are bad should be cast away. Instinct and automatism avail nothing here.

The Pauline exhortation has fittingly been followed in the approach of our theme to its present point in several ways: principles, facts and figures constitute a substantial tripod for the support of a growing sanitary triumph wherever they may be accepted and utilized for their worth and adaptability.

The promiscuous and common use of a cup or other drinking-vessel has much about it that is traditional, conventional and customary; it is seen in public and in private; in institutions both sacred and secular; at ceremonies of a solemn or sentimental, jovial, lively or boisterous nature. But, is it consistent with the preservation and improvement of personal and public health under present day conditions? We believe not.

"The best critics in the world are they
Who, along with that which they gainsay,
Suggest another and a better way."

Is there "another and a better way," along with which all that is essential in spirit and symbol may still be retained undisturbed, unmixed and untainted? We believe there is. It is realized practically, now, in the individual cup idea and movement; as a movement, however, it is yet in its infancy—but a few years old. Let us prove it; weigh it; consider it; hold fast to it and push it along if it is good, efficient and valuable, or reject it if it is bad, inadequate and useless.

The individual cup idea and the individual cup movement are the logical outcome of modern sanitary science. Clear and cogent reasons have led to the conception of the one; a consistent, courageous and practical spirit, to the birth and growth of the other. In the attainment of our present knowledge of the causes, modes of spread and means of prevention of the communicable diseases, in the development of the antiseptic and aseptic era in which we live, there has arisen simultaneously, intuitively almost, a more or less general and rational condemnation of the public use of a drinking-vessel in common under any circumstances. That this custom should be discouraged and prevented as speedily and universally as possible is an

idea that must have originated independently in more minds than one.

The writer can testify to a distinct and forcible impression in this regard, about nine years ago, while participating in the communion service of a church of which he was then a member, and which was the first in Philadelphia to adopt individual communion cups (September, 1894). Doubtless many have experienced similar aversions to the common cup, in secular life more than in sacred ceremony, from perfectly natural thoughts of preserving one's self from that which is manifestly unclean, unsanitary, unnecessary, unmannerly and unchristian.

Then arose the question of the feasibility of the individual cup. Was it practicable? And finally, has actual use determined the individual cup to be practical and satisfactory, safe and successful?

It would be an essay of supererogation to elaborate the scientific argument in favor of the general use of individual cups before public-spirited hygienists and medical sanitarians. The logical circle of induction and deduction, of direct bacteriologic and analogous clinical evidence, and of well-established, almost axiomatic principles of hygiene, will probably be completed in your minds before this sentence is completed.

The purpose of this paper is to show from the history, progress and present status of the individual cup movement, particularly among churches, its timeliness, reasonableness, usefulness, efficiency and urgency; also, the need of personal and, perhaps, organized or official efforts by medical practitioners and sanitarians in furthering its beneficence still more widely than now obtains, gratifying though this is.

It is but a little more than three years since the sanitary agitation for individual communion cups or chalices began to demonstrate their feasibility in churches which were not opposed to their adoption for traditional, ecclesiastic, ritualistic or other reasons. In so short a time, the truth about so important an innovation has not reached all sections of the country; discussion—free, calm, unbiased and deliberate—elicits the truth, and helps to disseminate and establish it. Hence, while we have on several previous occasions attempted to awaken local interest and activity in this matter (Phila. Co. Med. Soc., September 1894; Baptist Ministers' Conference, January 1895; Med. Soc. State of Penn., May 1895), the occasion seems opportune and fitting to present it to this representative national body of medical men devoted to the interests of the public health; and we appreciate this privilege at the same time that we recognize the duties attached to it.

Our topic suggests at once a three-fold question: 1. Should common communion cups be abolished, from a hygienic standpoint? 2. If so, would individual cups be adequate and practicable substitutes therefor? 3. Again, if so, would their adoption conflict with any essential biblical teachings or practices in the Christian churches of today?

Let us review the main features of these points *seriatim*. Let the historic reveal and develop the rational. The first and second questions have a medical bearing strictly; the last question must be settled by bible historians, exegetes and critics, and the pastors of the various churches.

1. *The progress of the individual communion cup reform does show that the common cup is unhygienic and should be avoided and abolished.* In the first place, for years, the possible and occasionally probable transmission of disease by the common use of a drinking-cup has been recognized by physicians and by intelligent and thoughtful people generally. Its uncleanliness is a matter of common sense. So far as we know, Dr. Terry of Utica, N. Y., was the first physician to advocate, publicly,[1] a change in the ordinary mode of administering the communion wine. But no actual microscopic or bacteriologic investigation of the communion wine before and after service, with common cups in use, was made until early in 1894, by Dr. Chas. Forbes (U. S. M.-H. S.) of Rochester, N. Y. He presented a report, on March 7, to "a joint meeting of the session and trustees" of the Central Presbyterian Church of that city, in which attention was called to the uncleanly and unsanitary communion cup passed from lip to lip; and in which a small individual tumbler or cup, "about sixty of which could be placed on a tray of convenient size" was recommended. In a report to the Rochester Pathologic Society in April, he stated having found in the dregs of the ordinary cup, contamination from both the mouth and clothing; from the former, epithelial cells, mucus, and various bacteria and spores; from the latter, fibrous material. Control experiments showed the unused wine to be practically sterile.

In June of the same year, in seconding here in Philadelphia the conclusions and suggestions of Dr. Forbes, my own investigations, assisted by Dr. Furbush, were fortified by the discovery of tubercle bacilli in two out of five specimens from the dregs of a common communion cup, besides some pus staphylococci, pus, and oral epithelial cells. Such facts and their inference showed the probable dangers of disease transmission, and the vital and far-reaching importance of substituting individual cups, if feasible, since millions of communicants habitually participate in this sacred, symbolic memorial of our Lord's Supper.

The fountain-head of this sanitary but not sacrilegious agitation and reform, so far as conjoint, official and energetic endeavor on the part of medical men is concerned, certainly is Rochester, N. Y., with Philadelphia a close second. Even before Dr. Forbes' scientific report and design of an individual communion cup outfit, the Rochester Pathologic Society held a meeting (Dec. 7, 1893) at which, after general discussion on the question of the "Danger Attending the Prevalent Custom of Passing the Cup," introduced by request of Rev. Dr. Stebbins and Dr. W. S. Ely, a resolution was adopted unanimously recommending "that the communion ordinance of churches should be so modified as to lessen the liability to the transmission of contagious diseases which . . . attaches to the prevalent method of observance. . ."

After a paper read by the writer,[2] in which the historic, rational and practical argument in favor of individual communion cups was outlined, the Philadelphia County Medical Society also passed a resolution recommending "an individual cup method or system of administering communion in all churches. . . . where the common communion cup is now in use;" and believing that the individual cups would afford a clean, safe and reliable means of preventing the spread of communicable diseases "from such a source as may reside in the ordinary chalice."

Evidence is not wanting then to prove, inductively, the dangers of a communion cup in common use. By

[1] Oneida Co. Med. Soc., N. Y., January 1887.

[2] Prophylaxis in Churches needed by the Adoption of Individual Communion Chalices or Cups." Trans. Phila. Co. Med. Soc., 1894.

analogy, the common drinking-cup having been clearly and justly proven a menace to the general health, as in schools, railway stations and cars, public fountains, etc., it is reasonable to believe that disease may be so transmitted in churches, though less frequently perhaps. Dr. Forbes referred to an epidemic of diphtheria which occurred among twenty-four persons in Rochester, and which was traced unmistakably to a common drinking-cup which all of the sick had used. All successful reforms of true and solid merit usually pass through three stages with the public: first, that of ridicule, indifference, or blind and prejudiced opposition; then, that of free discussion and the unveiling of the truth; lastly, that of ready, progressive and widespread acceptance and adoption, with beneficent consequences. The sanitary communion cup reform is no exception to this course.

Seemingly an unwarranted invasion of a sacred Christian ordinance, the movement was regarded at first by some of the clergy and a few of the laity with mingled expressions of horror, surprise, resentment and animosity. Condemned before it was considered fairly, the individual communion cup was treated contemptuously as based upon an imaginary menace to the health of Christian communicants and, therefore, merely a sensation or "fad." Calm, alert, frank and thoughtful ministers and church members, however, soon saw that the time was opportune for this sanitary and not revolutionary, reverential and not sensational, improvement in serving the sacramental wine. The lines became drawn for a while, and scattering shots occasionally, effective volleys not at all, were directed against the reform for a year or more,[3] with good results by increasing the interest all the more widely and deeply.

In reviewing the progress of events relating to this subject for the past three years, we may see that less emphasis has come to be placed upon the necessity of obtaining veritable evidence of actual disease transmission from an infected common communion cup or cups, in order that the demand for a change should be justified. Thus, right here we have the supreme value of established sanitary principles so applicable to the question at issue, that the importance of modifying the common mode of serving the communion wine is obviously a matter of logical deduction. Two fundamental principles supporting this movement are the security to health from cleanliness, and the preventability of contagious diseases, for they are preventable. Cleanliness is *not* next to godliness in the common communion chalice; it is far from it. If there is a real danger of disease being transmitted from mouth to mouth, at a common cup's rim, what diseases and of what gravity are they? Have any cases of disease thus arisen? Early objectors to individual communion cups were quick to put these and similar, as they thought, keen and critical questions to the advocates of a sanitary communion. We know of not one *bona fide* instance of disease contracted from a common communion cup. Let it be admitted candidly that it is manifestly difficult to prove as much; though this is not true of drinking-cups used for other purposes, simply because observation has been directed more closely to the latter as sources of infection. But, in the light of what evidence we have, and especially of the basic principles of preventive medicine, it is not at all necessary to show the report of any case to prove that our position is sound and tenable.

But who will say that many an innocent person may not have acquired disease from the common communion cup? Woeful consequences are statistically unknown and untraceable. It is probable that they have been produced, and even now may exist somewhere, knowing as we do that certain affections which may be present in those able to partake of the communion wine, are mediately communicable by the common cup. But we protest, is it reasonable, is it right, is it safe, is it Christian, to expose an hundred, a score, nay, even one, to the possibilities of disease, however mild, in the celebration of the Lord's Supper? It is not nearly so safe or sensible to have hundreds of persons whose condition of health and cleanly (or uncleanly) habits of mouth are unknown, drink out of a common chalice, as to have a goblet passed from mouth to mouth at our home tables; and that is not a common or consistent custom, even without favored guests to grace our hospitality. Nor is it likely, rather the reverse, that spiritual devotion or meditation will be encouraged by diverting thoughts and fears of physical contamination. We contend further that where no aversion to a common cup exists, apathy and that blissful (?) ignorance of hygiene because of which most of the world suffers, is to blame.

Among the maladies which may be carried from mouth to mouth by a common cup are syphilis, cancer, tuberculosis, diphtheria, scarlatina, influenza, tonsillitis, whooping cough, and others; the greatest of these is tuberculosis, the "Great White Plague," which, like the poor, we have always with us, principally because, not occurring in acute and alarming epidemic form, as do smallpox, diphtheria, cholera, etc., the fact of its contagiousness in insidious ways is not recognized generally by the public. Dentists urge strongly the importance of avoiding the common cup, because so many mouths are in an uncleanly, if not an unhealthy condition; neglected teeth, vitiated oral secretions, diseased gums, alveolar abscesses, pyorrhea, may be mentioned. "Sanitas," of London, writes: "In 1894–5, when influenza was very prevalent in England, the spread of it was noticed and put down to the same cause (common communion cup), in several of the church and other papers."

Some petty objections by sentimentalists against individual communion cups have been made, based upon the fallacious idea that vinous alcohol is a germicide. But this is not true, especially of the germs of some of the most prevalent, most contagious and gravest affections, even with pure, absolute alcohol; still less is it true with wine, where the percentage of alcohol is small. Furthermore, there are thousands of churches in which unfermented wine (grape juice) is used; and this is certainly consistent with another principle of hygiene—avoiding the temptation and disease and wretchedness of alcoholism—the "Great Red Plague,"—second only to tuberculosis in its destructive ravages. We know of a case where a reformed drunkard had his latent passion for intoxicants fired by partaking of alcoholic communion wine, and he ended in the gutter.

The medical testimony for individual cups which accumulated during the past two years is copious, convincing and pointed. Throughout the whole the "ounce of prevention" principle has grown to weigh pounds of potency. In Rochester, N. Y., where the first general agitation for a sanitary communion cup

[3] "Present Status of the Sanitary Movement for the Adoption of the Individual Communion Cup." Penn. State Med. Soc., May, 1895.

was instituted (December, 1893), in a definite, scientific and effectual manner, the advisors of a change embraced the majority of local physicians. Besides Drs. Ely and Forbes, already mentioned, were Prof. Dodge, biologist of Rochester University, Drs. Darrow, Barber, Mallery, and others. The writer desires to express his gratitude for public and private encouragement received from Philadelphia physicians "too numerous to mention." Dr. E. J. Howe, of Newark, N. J., has done earnest, effective and self-sacrificing work for the individual communion cup movement in that city and vicinity, aiding his personal efforts greatly by publishing a pamphlet for gratuitous distribution, in which numerous testimonials favoring this reform are given. Among the names are such sanitary authorities as Surgeon-General Sternberg, U. S. A., John B. Hamilton, Victor C. Vaughan and W. B. Atkinson; State Board of Health officers, as Drs. Probst of Ohio, Groff of Pennsylvania, Quine of Illinois, Caverly of Vermont, Baker of Michigan, Howell of Georgia, Cokenower of Iowa, and others, besides many local health officers, sanitarians and physicians. The progress of the sanitary argument for individual communion cups is well seen in the clear and forcible statements made. Drs. Hasbrouck of Brooklyn, Butler of Boston, Borland of Pittsburg, and Law of Oakland, Cal., also deserve credit for their able and enthusiastic advocacy of clean, untainted communion wine by means of individual cups. Medical journalistic commendation has also been pretty general. One editor writes as follows: "Notwithstanding the pooh-poohing of this movement by people who can see no danger in anything that is not sure death, it is steadily gaining ground." The London *Lancet*, of March 23, 1895, dwells upon the fearlessness of the modern reformer in warring against possible sources of infection, whereas before, criticism was little less than sacrilege. It then goes on to say that avoiding historic and religious aspects, we do not neglect the latter, nor are callous regarding pain given that there is even any idea of danger in the communion cup. "Moses, that prince of health officers, would probably not have sanctioned our present ritual." We may add reverently, that still less would Jesus Christ have sanctioned it. Progressive clergymen have argued against the common cup as being opposed to common courtesy, good manners, cleanliness, healthfulness, decency and convenience, as well as scriptural and early church history.

Let us conclude this branch of our subject with a few characteristic quotations from physicians and pastors. "It is not pleasant to take the cup after it has been used by a sufferer from catarrh, decayed teeth, sore gums or tongue, or a tobacco chewer. The condition of many men's mustaches as they touch the wine is very repulsive to think of; . . . the wine is filthy and should not be used by others." "A practice which is not for a moment tolerated in civilized households, is doubly reprehensible under the conditions of this religious rite." "Esthetically it (the common communion cup) is nasty; from a sanitary standpoint, unsafe." "To drink after those we know is distasteful and unclean; to partake of the common cup at communion is unsanitary and disgusting." "The question seems to resolve itself into two propositions: one, the ethics of religion; the other, the ethics of hygiene." "Cleanliness is not sacrilege." "We are taking measures in our health board to prevent the sputa of the infected from poisoning the air, but we view calmly the passage of the cup from the diseased to others, and fear to call a halt lest we trespass upon the traditions of the dim past." "We do not need to confess squeamishness when we say that we do not have that spiritual relish for the communion cup which has passed five hundred lips before reaching our own." "It is not fastidiousness which causes people to abhor a drinking-vessel used promiscuously. . . . This fact of uncleanliness detracts greatly from the beauty, attractiveness, solemnity and effectiveness of the communion service." In its directions for the "communion of the sick" the Protestant Episcopal Church recognizes the danger of spreading known disease by the common cup. Would it not be equally wise, sensible and prudent to guard its rectors and parishioners against unknown but often lurking disease? Candor compels us to ask whether it is a true, intelligent, wholesome or refined sentiment that is willing to swallow the breath-blown, saliva-tainted, mustache-dipped and often tobacco-fouled wine of a cup that has passed the lips of fifty or one hundred or more good people? Does it not savor rather of sentimentalism and sickness, than of sincerity, security and spirituality? Dr. Butler, of Boston, in a very judicious opinion favorable to individual communion cups, writes that even if "illustrative examples were lacking as respects the risk involved in the use of the common cup, I should still advocate its abandonment, basing my action on the principle, when of two equally appropriate and practicable courses of action one is attended with a possible, even though a remote, danger of disease transmission, and the other is absolutely devoid of such danger, it is the part of wisdom to pursue the latter rather than the former."

2. *The progress of the individual communion cup movement shows that it is practical and permanent; and that individual cups are adequate sanitary substitutes for common cups.* At the outset the demonstration that common communion cups were uncleanly, unsanitary, illogical and inappropriate to the best, broadest and most benevolent spirit of the times, was presumptive evidence of the practicability of individual communion cups. A little ingenuity, industry, enterprise and adaptability would surely accomplish the desired results; and prove that the individual, in contradistinction to the common, customary method would be satisfactory and safe. Indeed, hardly had the need of reform taken definite and rational shape before individual communion cups were put into practical operation.

So far as our knowledge extends, the first church to use individual communion cups for sanitary reasons was the First Congregational Church of Saco, Maine, in November, 1893. It may be of interest to quote from a deacon's letter to us: "Having officiated at the communion service for many years and observing the mustaches, sore and tobacco-stained lips, the idea suggested itself to me that there must be some better way. Then, too, the hurried manner in which the cup was passed from one to another took from the solemnity of the occasion and I thought if each one could have a cup of his own more time would be given for meditation and prayer and it would be of greater benefit to each communicant; and, as at our tea-table we have individual cups, why not at our communion-table! The change has been very satisfactory." But the first extensive use of individual communion cups was made in Rochester, N.Y., where on the first Sun-

day in May, 1894, the Central Presbyterian Church used the outfit designed by Dr. Forbes, a member, for its 1,800 communicants; although on the Sunday previous the outfit was first put to practical test in the North Baptist Church, with its 240 communicants. It seems that the Baptists and Presbyterians had the courage, liberty, adaptability and foresight to unite on this question, if not on questions of doctrine and polity. Other churches of the same and various other denominations in Rochester soon followed in adopting individual communion cups, so that within one month fourteen had them in use and six signified their intention of adopting them. In July, 1894, a Congregational Church in Lima, Ohio, adopted the individual cups invented by Rev. J. G. Thomas of that city. In September, 1894, after our study of the common cup dregs, the Fourth Baptist Church of Philadelphia, of which the able, popular and scholarly Rev. J. B. Gough Pidge, D.D., is pastor, voted in favor of the change, largely through the enlightened activity of one of its members, W. E. Tolan, Esq., editor of *The Worker*, the church paper. A half-dozen other churches, Methodist, Presbyterian, Reformed and Congregational fell into line before long, and several other Philadelphia churches are now contemplating using individual cups.

In some localities the people are more conservative than in others, prejudice is difficult to overcome and ministerial indifference and the obstinate opposition of eccentric authority retards progress. Generally speaking, the laity of the churches are quicker to see the need of sanitary communion reform and the good features of the individual cups than are the pastors. It is a matter of education in most places, and who are more competent to teach the principles and energize the facts underlying the movement to the force of penetration than the physicians, who are really very near to the hearts of the people?

Statistic accuracy in the study of the individual communion cup movement is difficult, owing to the desire of many churches to avoid a publicity which might be sensational. But the figures obtained below show that during the little more than three years of progress considerable gain has been made. Indeed, the very quietness, but steadiness of the advance is good evidence of its stability and worth and that the movement is not a "fad." Our facts have been gleaned from personal knowledge, religious and secular newspapers, individual communion cup manufacturers and jewelry firms. Perhaps the number of churches now using individual cups is greater by half a score or more than we have learned of, as replies from some sources have not been received.

We may summarize as follows: *According to denominations:* Congregational churches 65; Baptist 42; Presbyterian 33; Methodist Episcopal 20; Lutheran 5; Reformed 4; Protestant Episcopal 2; Universalist 1; Disciples of Christ 1; Welsh Calvinistic 1; unknown denominations 50. Total 224. *According to States:* New York 33 churches; Massachusetts 39; Ohio 25; Pennsylvania 23; California 23; New Jersey 18; Connecticut 11; Wisconsin 9; New Hampshire 8; Maine 7; Illinois 5; Vermont 4; Michigan 4; Indiana 3; Iowa 3; Rhode Island, North Carolina, Maryland, Colorada, Texas, New Mexico, Oregon, Nova Scotia and Japan, each 1.

The number of communicants in the various churches range from 36 to 2,000. The approximate average number of communicants is about 450 to a church; about 100,000 altogether.

One needs but to see an individual communion outfit in practical use to believe in it. It is beautiful, simple, cleanly, sanitary, easily worked and handled by both pastor and people, adds harmony, dignity, impressiveness and devotion to the service. The individual cups are made of silver, plated ware, aluminum or glass. They vary from one and one-half to two inches in height, are made with heavy bases about three-fourths of an inch in diameter, toward which the sides taper in either straight or gently curved lines from the tops, which are from one to one and one-fourth inches in diameter, so that they are somewhat beaker-shaped; while others, again, may be shorter, with handles like small teacups, or even goblet-shaped. The cups (holding about one ounce) are served on hardwood or light polished metallic racks or trays, holding from forty-eight to sixty cups; the rack may have two or three tiers of twenty cups each set in shallow, round openings; covers to exclude dust may be raised and lowered over the cups. The cups are filled, partly only, from a tankard or fountain supported over the tray. It has twenty or thirty small spouts diverging from under its bottom, each spout corresponding to the position of a cup underneath. Or there may be a half-gallon bottle, with tubing, stopcock and metal pipe, from the under side of which are a number of small, short tubes corresponding to the number of cups in the row to be filled. According to the particular custom, after the communicant has been served—at the altar or in the pew—the cup is replaced on the tray or rack (tapering cups are easily telescoped in a small pile), or in pew rings, or in small racks holding five or six cups, to be collected after the service. The cups are cleansed first in warm, soapy water, with a sponge or swab, and then being placed in wire baskets, are immersed in boiling water for a few minutes. They are then dried, replaced in the chalice holders and put away in dust-proof cabinets until the next communion service.

Rev. V. M. Law, M.D., an Episcopal rector in California for the last ten years, prior to which he was a practicing physician and analytic chemist, has devised an ingenious, single sanitary cup with scalloped rim. It was designed to meet the requirements of a "one cup" ritual, but is not so simple in arrangement or strictly sanitary as the individual cup method. The scallops are used in succession by the communicants, each scallop receiving a sufficient quantity from a reservoir holding ten ounces, fixed within the chalice and so constructed that when the latter is tipped in the act of drinking, a bubble of air enters below so as to force out another supply of wine for the next communicant. During the past fifteen months Dr. Law has made a sturdy, single-handed and successful fight for a sanitary communion in his locality (Oakland, Cal.), and many churches are now using individual cups in consequence.

Wherever individual communion cups have been adopted, the testimony of pastor and people has been expressive of the utmost satisfaction. They would not be persuaded to return to the old method. There is a sense of relief in using a clean, sanitary cup, devotion is promoted, the ceremony reverenced. Ministers say that individual cups are more convenient, and that there is less time occupied in serving them, and without any confusion, than by using common cups. Again, from nearly all churches now using the individual cups come replies stating that the number of church-members who attend communion service

has increased, and in some instances greatly so; in one Reformed church in New York the number of communicants was doubled; in a Presbyterian church "about 200 more communicants," and in another church 80 per cent. instead of 40 per cent. attend the service. One pastor writes that he has found "that the sanitary safety of the individual chalice appeals to the intelligence, removes all the objections of the sensitive and makes the service of the Lord's Supper more largely attended." . . . *The Congregationalist*, Dec. 26, 1895, speaking of nearly forty congregations which at that time had introduced individual cups, says: "Not an intimation of regret has been heard by us from churches now using the individual cup." Also, in a previous issue (April 18, 1895): "Nor is it a question concerning which the opinion of this or that man, who looks at it purely from a theoretic point of view, counts as much as the conviction of those who have had a chance to watch the practical operation of the system proposed."

3. *The progress of the individual communion cup movement shows that there are no valid objections to the use of individual chalices on scriptural, historic or present practice grounds.* This is a matter for the clerical profession to decide. Many more ministers, theologians, church historians, Biblical exegetes and critics ("higher or lower") than are associated with the churches now using individual communion cups, have pronounced a favorable opinion of the latter from their respective standpoints. Until fair consideration was given to the subject, the first feelings of most clergymen were those of resentment; but, as with exceedingly few exceptions they are intelligent and benevolent men, a little dispassionate and unprejudiced examination on their part usually results in reversing their positions of opposition to those of advocacy. There is a natural and, generally, wise conservatism which checks too hasty a change in religious customs. This conservatism is transformed into an equally wise and wholesome progressiveness, when the proposed change is seen not to encroach upon the spirit or essential doctrine of the custom.

The principal objection raised against individual cups has been that Christ used but one cup when He instituted the Supper. But the reply has been from many prominent ministers and theologians of all the various denominations that this can not be proved to be true; that He may have held in His hand one of many cups; that the Jews at that time used individual cups; that it is not stated definitely that His cup was passed around; that many churches in the past and at present use more than one cup, for convenience, in large congregations; and indeed, that the early Roman Catholic church used a tube or *fistula* for suction from the cup, and that a spoon was used by the early Greek church, and that objectors are inconsistent in stickling for "arithmetical and physical identity," since they ought also to conform to the first Supper in using unleavened barley bread, reclining at the table, etc. Certainly, if more than one cup is used, as is the practice in many Protestant churches, any number more than one may be used. It is no more unscriptural to use six hundred than to use six; on the contrary, it is more sanitary, logical, cleanly and commendable. And after all, there is danger of magnifying the letter and killing the spirit of the ordinance in bickering and hair-splitting about "the cup," since this is a minor detail as to significance, if any were intended; the *wine*, and not the cup, being elemental or symbolic.

"In essentials, unity; in non-essentials, liberty; in all things, charity."

Some have objected to the individual communion cup because they thought it destroyed the "feeling of fellowship," the unity of Christian brotherhood, and that it gave a "mistaken concession to the too prevalent tendency toward cleavage on personal or class lines." This seems like an imaginary and baseless sociologic sentiment. If it is discourteous to ask guests at our home tables to use a common cup, still more so is it to do so at the Lord's table, and surely, discourtesy is not conducive to good fellow feeling. "It should not be that social custom is in advance of religious custom." "It is hardly fair to read into this movement that which does not belong there. It is not an effort to emphasize social distinctions or to cater to the whims of the ultrafastidious, any more than good manners at the family table can be charged with breeding selfishness."[4] Common cups are not in accord with common sense, common courtesy or common sympathy.

In conclusion, what as to the future of this movement? Rev. V. M. Law of California, believes that "the strong tide setting in its favor shows that it must come or we will have depopulated communion tables." He thinks (himself an Episcopalian) that Episcopal clergymen need some pronunciamento on the subject from boards of health and medical societies, since it is not likely that they would heed personal professional appeals. But it is not probable that health boards will take any action, for fear of interfering with religious matters. Our own AMERICAN MEDICAL ASSOCIATION would certainly give great impetus to this sanitary reform by giving it official sanction and recommendation.

The trend toward individualizing drinking cups in general is so apparent and positive, though not yet so prominent and pervasive as we might wish, that it may not be too extravagant to express the belief that this particular hygienic reform may prove to be a "red letter" event in the history and development of sanitary science.

It is appropriate that the church, in its work of Christian beneficence, should be a leader in the application of sanitary principle wherever indicated, as in the administration of the communion wine. Not, let us hasten to say, because the evils of uncleanliness and possible contagion are greater than in other directions, as in schools, on railways, etc.—they are probably much less—but because of the unique and exemplary influence of the church. Furthermore, the province of the church of Christ includes largely an oversight of the physical, as well as the spiritual, intellectual and social welfare of humanity. "It stands for progress, and its example should always be on the side of the highest, most refined civilization." The individual cup and the "institutional church" have large futures for good before them—respectively, we may predict; conjointly, let us hope and strive for.

Compulsory Life Insurance.—From Berlin we learn that the government is preparing bills providing for compulsory life insurance throughout the whole empire, and for old-age insurance for the laboring classes. Delegates of the central insurance bureau have been asked to advise the government in this matter.

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[4] The Congregationalist.

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION BY CARL H. VON KLEIN, A.M., M.D.

(*Continued from page 745.*)

XIV.—INFLAMMATION AND WOUNDS.

German theories on inflammation; J. Hunter's teachings on the finer precedency of curing inflammation and wounds; Treatment; Lumbar abscesses; Misuse of the sound and plugging of the wounds; Lint, poultice, cold water, lead preparations, etc.; Bloody suture; Fresh air, baths in fever; Cold showers in typhoid; Arresting hemorrhage, thrombosis; Ligature of the arteries; Compression, agaric; Early attempts at subcutaneous surgery.

If one conceives inflammation as the center of all pathology, because the ideas concerning the nature of morbid processes were strongly influenced by the prevailing conception of its development, he can only timidly enter into German science. No system sprang up which did not impress a certain stamp upon the theory of inflammation. In the beginning of the century the doctrine of Boerhaave prevailed almost everywhere in Europe. It consisted in a stoppage of the blood in the smallest arteries, which came about either because the blood had become thick and viscous through causes which removed the thinner parts (diarrhea, perspiration, etc.) or because different large drops of blood entered into the vessels in which they did not belong and obstructed them. The ideas of Boerhaave were modified variously. Hoffmann considered that the blood in stagnation had a tendency to putrefy; Stahl, that a congestion precedes the obstruction, etc. Haller was the first who without entirely denying the obstruction, believed that the blood exudes directly into the cellular tissue and that the seat of inflammation is there and not in the smallest arteries. All these theories, based upon false conceptions of the composition of the blood and of the blood vessels, were buried along with the systems. German surgeons also accepted them Heister placed inflammation in the same category with cancer and white swelling, and described them as heated swellings. Among external causes belong various injuries in which the blood vessels are lacerated, squeezed or so wrenched that the blood can not flow freely through them; as internal causes, all kinds of acridity which occasion a constriction of the blood vessels, and also too plentiful and too thick blood. In short, everything which constricts the blood vessels and makes them narrower, or so thickens the blood that it can not pass into the smallest capillaries was said to cause the obstruction and inflammation. The view of many surgeons, that the souring or fermentation ("Gierung") was the exclusive or in any way the principal cause of inflammation Heister considered as entirely erroneous. As the results of inflammation, he recognized the gradual dispersion of a disease, suppuration, mortification and scirrhus. A. F. Pallas and Brambilla considered the irritation of the nerves as the cause of the obstruction of the circulation in the finer arteries. E. Platner, together with Haller, placed the seat of inflammation in the cellular tissue. Richter opposed this opinion. He clung to the theory involving the smaller arteries and argued that the causes of inflammation lay "in the cramped tension, increased constriction and oscillation of the sensitive and irritable capillaries and blood vessels, in an increased flow of the fluid and a quicker movement of the same through the inflamed part."

Enough of these worthless theories of our countrymen. Our attention is drawn to *John Hunter*, whose work on inflammation and wounds was ridiculed by his contemporaries as a whimsical innovation, but has become the starting point of modern investigations and still forms the basis of present opinions. Hunter's great intellectual strength and the ample order of his ideas appear in these researches, if anywhere. They are rich in experiments upon animals, by which, in connection with microscopic investigations, Hunter sought to explain every striking natural phenomenon unfamiliar to him. He studied the heat of inflamed parts, the development of new vessels, the prima intentio, the formation of scars, etc., and in respect to those processes accomplished everything which could be done before the discovery of cells. Let us follow him! Since inflammation is not only a cause of disease, but is often also a method of cure, it is raised by this extended circle of effects to a main principle of surgery. Hunter divided inflammations, according to their outcome, into adhesive, suppurative and ulcerative. As a rule, adhesive inflammation precedes the suppurative; in very severe cases the suppurative inflammation can begin at once and pass over the adhesive stage. *Adhesive inflammation* arises first at one point, from which it spreads gradually; it is most severe at that point and weakens as it spreads. Next it appears to be an increased activity in the smallest vessels, based upon a distension of the arteries. It forces red blood into the vessels which otherwise contain only transparent fluids, so that the inflamed part through which now a greater quantity of blood flows appears to have more vessels. The extended vessels excrete upon the inflamed surfaces a coagulable lymph in which new vessels originate, whose increase and ramification the elder Hunter often saw quite clearly. In this way the dark red color and the swelling are explained, and into the neighboring cellular tissue the lymph exudes and thus causes the hardness of the swelling. It coheres and transforms itself into an almost organic part. In the adhesive period the new vessels serve to give the newly formed substance the power of activity and in suppuration tend to prevent the formation of a vascular granulation, while in the suppurative period they help to build such a formation. Inflammation affects the blood, and its components separate very readily. While the lymph coagulates more firmly, but more slowly, the red part has time to sink, by virtue of its weight, so that the lymph appears as a white membrane on the surface.

Suppuration never arises without previous inflammation, although it is not always in consequence of severe inflammation, since very slight inflammations are sometimes transformed into not very severe suppurations. The same vessels which previously excreted coagulable lymph into the cellular tissue gradually change their contents and excrete pus; therein consists the only difference between suppuration and adhesive inflammation. Yet the pus is not present in the blood, but arises first out of it without lacerating the vessels, as a product of a secretion analogous to the other excretions in the body. Richter considered these assertions of Hunter as too absolute, and believed with B. Bell that the pus, made chiefly out of the serum, but not completely formed and removed from the blood vessels into the abscess as E. Platner said. Hunter attributed to pus three cardinal proper-

ties which distinguish it from other animal fluids; it consists of globules, that float in a fluid which curdles a solution of sal ammoniac, and is the result of inflammation. Although Senac first mentions the pus globules, yet they were first investigated in Hunter's school. Home calls attention to the fact that by the red globules blood is distinguished from pus which contains whitish opaque balls in a watery transparent fluid, but that chyle has small spherules, and those in milk are just as large as in pus but more numerous. Everywhere people took great pains to distinguish pus from mucus; they found that the pus sinks to the bottom in spirits of vitriol and water, but that mucus floats; the former gives the water a cloudy, pale color, the latter generates in it floating filaments (Darwin), etc. Another discarded that distinction (Michaelis) and considered it of no practical value (Ford). When an absorption is combined with suppuration it is called by Hunter *ulceration*. The lymphatic vessels absorb either single constituents (chyle, fat and earthy substances of the bones) or actual parts of the body by which a wasting or a complete decay of the part follows. The latter is more apt to be the case with ulcers. In this absorption the principal effect occurs, probably from out the mouths of the absorbing vessels. Hunter denied that pus had the capacity to disintegrate the solid parts and transform them into pus. One effect of suppuration is *granulation*. This does not always presuppose a separation of the parts; only when internal surfaces are involved in suppuration must such be the case if they become granulated. Usually the contact of the outer air is a necessary condition, hence abscesses seldom granulate before they are opened. Granulation arises from the coagulable lymph which exudes and is transformed into a new substance; in it not only the old vessels extend themselves, but new ones arise. The granulations continue to excrete pus and have a tendency to unite with one another probably in the same manner as in the case of adhesive inflammation. When they approach each other the orifices of their absorbing vessels come in contact and coalesce. Like plants, which always grow from the center of the earth toward the surface, they strive to approach the skin. By another party the cell matter was regarded as the basis of granulation (Bichat: "Zellige Bläschen") and the formation of new substance was denied (Fabre, Louis). *Cicatrization* follows granulation. The hitherto separated parts are drawn together, especially at the edges, and it is a certain evidence of imminent healing when the skin in the region of the ulcer becomes smooth and white. At the surfaces of the granulations arises the epidermis, which one can regard as a new substance or as an altered surface of a granulation. Usually the new skin develops almost as an extension from the edge of the old, but not always. As in old ulcers, the new skin at first looks like small islands. While the new skin is not so flexible and elastic as the old, the parts around the ulcer thicken and harden in consequence of the exuded lymph. The German surgeons knew nothing of all these finer processes of the formation of granulations and cicatrization.

The effect of suppurative inflammation on the constitution Hunter designated as *symptomatic fever*. He said, "it is to be noticed that every local disease of any importance, or every disease which consists of a considerable and ready activity, even if it covers no great surface, affects the constitution more or less and produces appearances which, taken together, are generally called syptomatic fever. The symptoms of this are the expression of the sympathy of the constitution with a local disease or injury, and in consequence a number of conditions differ among themselves. They vary according to the nature of the constitution, which occasions very great differences. The modifications which age causes are included among these. They vary according to the tendency of the part in a diseased condition, and from this also arise great diversities: They vary according to the amount and kind of pain suffered, the way in which it was produced in the body; according as it is of a nature that immediately produces inflammation, as in cases of wounds, or less directly as when a part has become mortified; they vary in similar parts according to the situation of the diseased parts of the body; they vary according to the period of the disease." These views were shared by most surgeons till recently without receiving any actual accessions. The typical course of inflammatory processes and of the fever connected with them, was also announced by Hunter: "I will remark that every local or constitutional disease which possesses the power of bringing itself to a close usually shows a regular course and definite periods. . . . Since the regularity in the method of action of diseases leads to a final issue, it is something very desirable when the variations in the action of a disease show a repression of it either for a little time or permanently." Pyemic fevers had also become known. A. Paré had mentioned this fever which, dependent on the absorption of pus, is indicated by a shivering chill from twelve to fourteen days after the injury; he even saw the metastatic pus particles in the spleen, the lungs and other internal organs. F. Würtz likewise represented it as a "great vulnerary disease, vulnerary gall, and condition of unrest, which we now describe as pyemia." Hunter opposed the view, so very popular in the last century, that "hectic fever" is to be ascribed to pus absorbed from an abscess or ulcer, since he could not concede the admission of pus into the circulation as the cause of so great mischief as is usually attributed to it. Many surgeons deduced wound fever from absorption. Richter also admitted the absorption of pus, but said that healthy pus did little harm by its presence in the blood, while unhealthy pus, on the contrary, gave rise to very serious results. He distinguished inflammatory fever from wound fever, which follows injuries and operations and is not only inflammatory but also of a bilious nature. The German investigations in wound fevers have begun in our time at the point where Hunter left off.

The German surgeons held the same low point of view in the theory of *wounds* as in inflammation. The actual process of the healing of wounds was entirely unknown to them, and if they spoke of the rapid union and taught means to that end, yet no one knew in what it actually consisted. Into this darkness Hunter first brought light. He knew that there are a great number of injuries which need no treatment at all; for while diseases induce a defective action, injuries on the contrary always have a tendency toward restoration. He divided injuries into those which do not communicate with the outer world and the reverse. In the latter and in extravasations the escaping blood first coagulates and the coagulum becomes, as it were, the basis of restoration. Either

vessels are formed in this, or they push out the originally contiguous surfaces of the severed parts and form extensions as in granulations. Hunter thought it possible to produce by injection the beginning of a new formation of vessels in the coagulum, where no vessels whatever could be drawn from the surrounding parts. Nerves also appear to generate in the coagulum. The second point in the healing of the extravasation is the closing of the lacerated vessels, whereupon, after a little time, the absorption of the superfluous discharged blood follows. It becomes a band between the severed parts so that the one does not unite directly with the other, but each with the blood on its own side. The healing *per primam intentionem* then consists in the organization of extravasated blood. By this the junction usually follows so closely after the injury that one could note it momentarily; when the blood has coagulated it adheres to the two severed surfaces, which it holds together; then the *prima intentio* has actually begun. The rapidity depends in part upon the amount of escaped blood. If it is great, then the blood does not become vascular in its entire extent, but only at the surface which is in contact with the surroundings, and the rest is absorbed. On the contrary, if the amount is small, as in slight wounds without laceration, and if all the parts are brought into absolute contact, the junction by *prima intentio* can be fixed after twenty-four hours. One sees this in head wounds and after the operation for hare-lip, although in the latter perhaps forty-eight hours are necessary to be sure of a perfect junction. Wounds often heal just as lesions which do not communicate with the outer air. Also simple wounds, as many resulting from operations, admit a *prima intentio*, but no bruises or wounds containing foreign bodies. This kind of cure was hardly known among the German barbers, but with the better surgeons soon came into extensive use. If one has such a method in view, it is in many cases not necessary to remove with great care the blood which covers both the wound surfaces for the purpose of bringing them into perfect contact, since the blood itself already establishes the connection. The orifices of the vessels soon close, the red part of the blood is absorbed, the coagulated lymph remains behind, becomes the actual means of holding the parts together, and later receives vessels and nerves. If *prima intentio* is impossible, inflammation ensues as a secondary action, and if this also fails granulations form. If the severed parts are left to themselves inflammation inevitably follows, which effects the exudation of lymph. This Hunter called "adhesive inflammation," and maintained that the adhesion comes about through the plastic lymph, which he considered necessary in every organic tissue. This inflammation requires about the same time for a junction as the *prima intentio*, which he distinguished from the former, while today they are regarded as essentially one and the same process. If the parts remain separated too long, suppuration is unavoidable. The old principle that a wound with loss of substance through granulation heals by "young flesh," came to be much doubted until, by experiments on animals, the old truth was again established. Hunter taught still another kind of healing, to which James Moore had already called attention in his prize essay on the healing of wounds (1789), that through *scab formation*. Nature effects this process without the aid of art, when the edges of the wound which are not in contact, so that *prima intentio* is impossible, become connected by means of a scab. The blood which flows from the separated parts coagulates in part and dries up of itself, or is absorbed by dry lint into a scab which covers the whole wound, and thus prevents suppuration. Formerly too little attention was given to this process, because the surgeons imagined themselves in possession of more powerful remedies than nature has, transformed every simple wound into a suppurating wound, and endeavored to prevent the formation of barks and crusts. Since the scab always needs a surface, it can form only on superficial wounds and on the surfaces of deep wounds, and therefore it must be prevented in gunshot wounds and wounds in which foreign bodies have penetrated. If such a cure does not take place the wound suppurates and no further harm is done. In many deep wounds the union beneath is more successful if a scab forms over the surface; hence many complicated fractures should be so treated, especially if the external wound is very small. How far one can carry these methods is not yet determined, but an everyday experience teaches that small wounds heal very well in this way, and in large ones there is no danger in making the attempt. If a slight suppuration follows, the scab can be opened a little so that the pus can flow out and all is well. If, in the meantime, the inflammation makes progress, the scab must be softened with poultices in order to loosen it. For burns by fire or boiling liquids this is the best method of treatment. While in English surgery the theory of scab formation was transmitted traditionally, Hunter's observations were so little regarded in Germany, where people were still submerged in their salves and plasters, that the literature of the first half of this century has almost nothing concerning them, and only after seventy years has the present generation taken them up actively (Volkmann, 1862)! We will leave Hunter's investigations, which are so similar to those of the present time that one could regard the one as the direct continuation of the other.

In the *treatment of inflammation* bloodletting, especially locally, stood foremost in Germany. Next to this, opium, which Richter considered the greatest antiphlogistic remedy, was given in England in large doses and preferably with calomel (Hamilton) or with ipecacuanha as a Dover's powder; then neutral salts, emetics and purgatives. Among the latter, castor oil was much less known to the German physicians than to the English; even in the year 1777 Theden knew nothing of it. In respect to external remedies Heister made a distinction between ardent and phlegmatic temperament, using poultices of vinegar for the former and for the latter brandy or spirits of camphor, always some heating agency. Richter determined accurate indications for irritant and emollient remedies according as to whether the inflammation was occasioned by weakness or irritation. He also made the assertion that by means of the application of the tourniquet to the extremities he could prevent or moderate a congestion of the fluids and the consequent inflammation ("Chir. Bibl.," i, c. 135). This idea, which as it appears he later abandoned, first gave rise to a practical result when Vanzetti in the year 1858 introduced indirect digital compression to the arteries for the treatment of inflammation. The *abscess* was opened in the middle by incision or, in case of patients who were afraid of the knife, by a corrosive (lunar caustic); if they opened spontaneously they were covered with a poultice. They were treated with lint covered with oil. In case of bubo,

Sharp preferred caustic and taught that the abscess should neither be obstructed with plugs, syringed nor should be probed with the fingers nor probes; wounds should not be too scrupulously cleaned; the sore should never be wiped, but should only be dried with fine lint. He did not consider the influence of the air so injurious as was usually supposed, since large abscesses in the bodies of animals were observed to heal very well. As opposed to him, Richter insisted that the opening should never be made unnecessarily large, aside from the slanting sides of depressions; and then it were better to make counter-openings or to open the abscess by means of a seton recommended by B. Bell for preventing the admission of air. For enlarging he invented his curved scissors. The doctrine that all abscesses without distinction should be opened was already recognized as dangerous and it was recommended that those on the breast as well as suppurating bubo should be allowed to open spontaneously (Ford). Only on the most important parts of the body should they be opened early, and there is no surgical operation which demands a more accurate anatomic knowledge, since the abscess may arise anywhere on the body. For exactly this reason Richter had earnestly taught the young surgeons to be able to feel fluctuations, since nothing better revealed the skilled surgeon than the readiness with which he recognized deep-lying secretions of fluids, and a false diagnosis of this kind easily shook confidence in a surgeon. Up to this time the lancing of the little-understood renal abscesses had always proven fatal. Previous to 1780 David in Rouen make the observation that after their opening the pus which had at first been healthy soon became noxious, and he ascribed this change to the large incisions and the admission of air. He therefore pierced the abscess with a trocar and immediately applied a bandage. This method had only once proved successful and failed many times in his later experience. (Incidentally it should be noted that the trocar in its present form came into general use from France, after Petit had fashioned the feathered canula. Since then the name troisquart arose, *parce que sa pointe est triangulaire*, as La Faye says.) B. Bell also used the trocar for piercing, introduced a tube and employed a syringe; if the festering did not diminish after a few weeks he introduced a lead solution or lime-water. Abernethy first made the theory of the renal abscesses and their treatment generally known in surgery, through his work ("Surgical Essays," 1793), founded on several observations. According to him, if this abscess, which seldom has its seat in vertebral caries (frequently according to Ford), is opened and immediately closed, no inflammation ensues; the opening contracts and becomes perceptibly smaller. He did not believe that the admitted air was the cause of inflammation if all pus were carried away, any more than the absorption of pus caused fever. He recommended that the swelling be opened as soon as possible and he exchanged the trocar for the lancet, extracted in every case all of its pus and drew the opening together with adhesive plaster. He made a second puncture before the abscess had again reached its former extent, for the most part fourteen days after the first opening, and on one occasion cured a patient after five punctures.

In the *treatment of wounds* there prevailed, until the end of the eighteenth century, the dogma of the injurious effect of atmospheric air. According to Heister it was said to constrict and dessicate the small veins and to prevent the growth of the flesh; according to le Cat, it was said to cause suppuration in the obstructed blood vessels, the callous hardening of the wall of the wound, sores and the re-entrance of the pus into the blood. Heister recommended, therefore, that the air be excluded as much as possible by means of quick bandaging and that the wound should not be exposed before the bandage material lay ready and in shape. But instead of securing to the patient the advantages of fresh and pure air, he had the rooms fumigated several times each day with frankincense, mastich and the like. He knew nothing of ventilation. Pringle's views were adopted by Schaarschmidt, who also placed the wounded as far apart as possible and diligently attended to airing the wards. B. Bell also considered it of the highest importance in bandaging to avoid the evil and dreaded consequences of admitted air and therefore recommended, as did Richter, that every bandage be applied as quickly as possible and changed as seldom as cleanliness would permit. The frequent prize essays of the Académie de Chirurgie, already mentioned, show what value was attached to the treatment of wounds in the first half of the century. Richter adhered to the principle that nature alone accomplished the healing and the surgeon had nothing else to do but to remove accidental obstacles to the process and to moderate inflammation and suppuration. For simple knife wounds and cuts he recommended speedy conjunction. If among the great crowd of German surgeons there had ever insinuated itself a cardinal sin it was the *maltreatment of fresh wounds by probing them and filling them with lint.* How it is possible that for centuries the fundamental principles of surgery have been so ignored by the great mass and its eternal truths entirely forgotten it is difficult to conceive. Who will look down contemptuously upon literary studies, knowing that millions of human beings might have been spared so much pain and so much misery if the best teachings of our forefathers had been regarded. The abuse of sounding and the filling up of wounds can not be better described to German surgeons than by Felix Würtz in Basel in the year 1576! "With the explorer they probe, poke and stir in the wounds as if they had lost something there. . . . (Several physicians are present.) It is not enough that one should display his mercilessness with the probe, but after the first another also, and after him a third must seek for his lost penny and stir around in the wound, each one as rough and boisterous as the other. . . . But I do not know in the least how to characterize that practice, which is much in use, of filling all wounds, without distinction, with shreds, rags and other similar things and forcibly pressing them in. Medicines belong in the wounds and not such rags. . . . The pus is thereby obstructed and can not come out through the bolted door as it tends to do and as nature eagerly forces it." These abuses were not only thoroughly implanted among the Germans but in other nations also; they were handed down from one generation to another, although the best physicians of the time always protested against them. C. C. von Siebold wrote to Baldinger concerning the delicacy in probing and bandaging "without this quality in surgeons, surgery is beastliness." In the bandage-pouch which the German surgeon of Heister's time carried with him, were found in the case or "Sächlein" the following instruments: Small and

large lances, straight and curved scissors, corn-tongues, razors, a straight, a curved and a two-edged knife, various probes ("Sucher"), a spatula, straight and curved needles. Besides these, a metal case contained several salves, plasters, vitriol, nitrate of silver, lint, ("carpey"), puff-ball and bandages. That in our day every evil has not been entirely eradicated is shown by the fact that only twenty years ago Stromeyer, in investigations of gunshot wounds, recommended the military physicians to throw away their probes; in the last Franco-Prussian war I myself heard, as an excuse for the squeezing out and filling of wounds, that they could not give the patients clean shirts every day. Ravaton spoke of the horrible manipulation of probes with which the breast and abdomen were torn up in cases of gunshot wounds, and he allowed them only for piercing a wound or to determine the presence of a foreign body. Bilguer also protested against much pressing and probing in gunshot wounds: "The indecisive and slow surgeons make an altogether superfluous and unnecessary use of the probe, which must be discontinued first of all; ten, even twenty, times they stick the probe into a wound, lay it away and use it just so again without reflecting that this probing is quite superfluous and injurious." Bilguer as well as Richter preferred to investigate with the finger in the region in which the part was injured because he could feel more nicely and irritated the wound less than with a probe, and he would rather widen the wound somewhat for the finger than to brobe it. J. Bell and J. Hunter likewise considered the finger the best sound for gunsbot wounds. Bilguer had little need for a probe and thought it never should be used except in a few cases to determine the extent of the injury or to ascertain whether one touched a bone or a bullet. B. Bell insisted on the great importance of a free and unobstructed flow of pus and to that end recommended for deep wounds the adjustment of lead tubes instead of the easily obstructing pledget; this was drainage a hundred years ago! Silver tubes already applied to this purpose, which are resurrected in our own time by Hueter, he considered not so good because the lead ones were softer and more pliable. At that time the abuses were just as great in France, where in severe injuries blood-letting, recommended especially by Ravaton, and neglect of purgatives were practiced.

They applied pledgets with digestive salves to fresh wounds after the blood was stanched. Lint, and indeed dry, they used only at the beginning of suppuration; Hunter approved of it for the formation of scabs. At the end of the century, in France as well as in England, it was very much misused. Brambilla and the Frenchman Terras protested vigorously against it, and the latter recommended the curly lint above the long-fibered kind. In Desault's school it was applied very loosely; Wardenburg had learned that, and he said that whoever saves lint wastes the life of his patient. Pouteau recognized in it a frequent medium of contagion, when scraped by people who were impregnated with hospital air, and on that account he ordered that all the lint used in hospitals be prepared outside of them, and recommended, for the sake of economy, pledget paper instead of lint (It is well known that recently Roser endeavored to introduce blotting paper as a substitute for lint). Pelletan also attributed the rise of hospital gangrene to the fact that they had bound the wounds with lint which had for several years been stored in the Hôtel Dieu in the vicinity of the wards. For poultices they used all possible herbs, blossoms and roots boiled in water or milk. Indeed, it is interesting to know that our everyday cataplasm of linseed meal found its greatest advocate in J. Hunter; yet, every excellent gentleman who looks with contempt upon minor surgery, must remember that the greatest genius did not feel it beneath his dignity to give directions for the preparation of a poultice. Hunter thought the usual poultices too fluid and not thick enough to retain a proper form, and he considered the mixture of bread and milk too unstable. He recommended pouring on linseed meal a quantity of boiling water sufficient to make a paste of the right consistency, and adding some mild oil to a quantity of this mixture. He considered the poultice as the best means of bandaging in gunshot wounds and in most lacerated wounds. Later, that deep thinker, Abernethy, took the pains to instruct his countrymen in the preparation of poultices, and for thanks was derided as the "poultice crank." In France, where in the last decade of the century wounds were often so assiduously washed out that not a drop of pus remained, poultices were more in use than any other remedy. At the entrance of the hospital the attention was arrested by great tables with pans full of linseed meal and marshmallow water. Their frequent use was based upon the idea, very general in France, of a so-called "depot." If a little redness and swelling was formed, they did not inquire whether pus was already present, but whether it were yet formed, and they endeavored to soften the swelling.

Cold water must needs be discovered anew. In the seventeenth century it seemed too simple a remedy, they applied only salves and plasters to wounds. Although in the first half of the eighteenth century the Englishman Smith and the Frenchmen Lamorier and Chirac brought forward cold water again, still the methods seem to have been forgotten. Our Schmucker has the great honor of bringing it again into use in injuries and inflammations. In accordance with the physiologic views of the time he wished to have, for his patients with head injuries, a remedy "which would contract and strengthen the relaxed vessels, especially the tender lymphatic and serous ones, besides preventing a further exudation of lymph and hastening the absorption of that already discharged." He took cold water, since he could get no ice, which he would have decidedly preferred, and to increase its effectiveness made a mixture of forty pounds of water, four pounds of vinegar, sixteen ounces of saltpeter and eight ounces of sal ammoniac; he called this his fomentatio frigida. Theden followed him, and the Frenchmen Lombard and Percy. Richter had little to say of cold applications, nothing at all of ice; but Hunter, who valued it highly for inflammations, thought it was not so generally applicable as other remedies.

The *lead preparations*, introduced in 1760 by Goulard of Montpellier, made considerable sensation, especially acetate of lead. Without any indication the barbers and bathers applied lead preparations to most surgical diseases, insomuch that all other remedies were forced into the background. This enthusiasm lasted some twenty years, till Aitken in England, and then Hecker with us, assigned narrower limits to these remedies and taught a more guarded application of them. Desault, and B. Bell, who injected a weak solution of lead into wounds but as for the rest protested against powerful injections, and also Theden, were very partial to these remedies. In the second half of

the century, in all countries, a reaction against the excessive use of salves and plasters began to prevail. Würtz had said in this connection, "that they cleansed wounds with rags saturated with oil and salve in the same way that a guard cleans out the barrel after he has shot off a gun, and the practice of treating all wounds with the same salves and plasters is just as senseless as it would be to fit all feet with the same shoes." The German surgeons in Heister's time bound small wounds with brandy or honey, oil of turpentine, Johannis oil, Peruvian or some other wound balsam; they preferred balsam and spirituous poultices for incisions because they dried the wound more quickly; oil and digestive salve for bruises because they hastened suppuration. When one reflects upon the simple, almost dry treatment of wounds of antiquity, he is disgusted with the enormous amount of salve-smearing of this time, which began with the decadence of medicine. Instead of the usual *bandages* of linen, B. Bell preferred flannel because it is elastic, fits firmly and yields to the swelling of the part. His countryman, Gooch, recommended laying a fresh *wax sheath* on the compress to protect the bandages from pus.

The *bloody suture* in wounds was almost entirely discarded during the eighteenth century. That was the same stand which F. Würtz took, who condemned the suture on account of the scar it leaves, of the tearing up of the filaments in a growing tumor and of the seizure by the suture of nerves in general. They preferred a ligature with adhesive plaster (or English plaster) in most cases. J. L. Petit and Hunter gave adhesive plaster the preference over bandages; the former because the bandage covers the whole wound, obstructs excretion and is adjusted sometimes too loose, sometimes too tight; the latter because the adhesive plaster induces neither inflammation, suppuration nor ulceration, which the bloody suture always does. Adhesive or English court-plaster is therefore best adapted to amputations, operations for harelip and the extirpation of tumors. Sharp, on the contrary, sutured all fresh incisions and found that sutures on the head were less injurious if they were carefully made. In Germany Heister preferred the so-called dry union and only when necessary, especially in large oblique and angular wounds, would they resort to the bloody suture, because it caused pain and new scars. Richter restricted the use of sutures as far as possible on account of irritation and inflammation, and gave the dry method preference without actually discarding the other. He made the suture with a curved needle and a thread which was composed of separate single strands, was waxed and resembled a small bandage. He had the stitches lie, for the most part, a thumb's breadth apart and two or three lines from the edge, and pass through the base of the wound; the threads were fastened with a simple knot and a noose.

Concerning the *treatment of fevers* we will select only one point which has special interest for our time. While from Hippocrates down heat was considered the pathognomonic symptom of fever, in the eighteenth century they laid the greatest stress upon the acceleration of the *pulse*. According to Hunter the regularity, irregularity and rapidity of the pulsations depend only on the heart, while the strength, the undulation, the fulness and weakness, the beating in two throbs pertains only to the arteries. He believed that the condition of the pulse is not easy to determine and that one can only learn to judge its weakness, strength and tremor with accuracy by experience. Many physicians never learn this, as for axample, William Hunter who could not feel the fine differences of the pulse. These can be perceived only through the soul, and it is just as in music, when much sounds inharmonious and unpleasant to the more sensitive ear which is not so to another. In England the use of a pulse-watch was highly esteemed as the only sure method of judging of the pulse, since even the most experienced practitioner deceives himself without such an instrument (Fordyce). Ignorant braggarts, on the contrary, sneered at the use of a second-watch, as Brambilla, for example. In this connection it must be remembered that in Germany, even in the middle of the century, the possession of a watch was frequently dispensed with. It is known, that Semler only obtained his silver watch when he was a professor, while about the year 1780 every master and student required one. Influenced by Pringle's ideas the English physicians laid great stress on *pure and cool air* in the treatment of fevers. Everywhere the ordinary man desired for the fever patient a narrow, hot, sometimes ill-smelling chamber. The patient lay buried in bed and was given special drinks to promote perspiration as much as possible; change of bed linen and shirt was strictly forbidden. Gregory in Edinburgh (1772), opposed these abuses sharply, let cool fresh air into the sick room, constrained the fever patient not to eat and drink, but allowed him as a drink all the cold water or thin beer that he would take. He also let the patient stretch his hands and feet out of bed at pleasure, and had the bed linen changed daily. Fordyce in London (1773), knew that the human body can be more quickly cooled by air cooler than itself than by internal medicines. He desired cool moist air, large rooms with fireplaces, roomy beds and a frequent change of bed linen and shirts. It surprised him very much that his German colleagues had their patients lie in rooms where the air was so extraordinarily hot and bad. And yet de Haën had already taught (1757) that excessive heat aggravates diseases and therefore a moderate temperature is necessary; he had his fever patients lie on the outside of the bed for a few hours, which refreshed them greatly and induced a gentle sleep afterward. By the misdirected care of stupid nurses, who avoided every draught, the disease was newly aggravated, indeed sometimes fatally. Hunter also valued fresh air as of the utmost importance in guarding against the so-called hospital fever, which arises chiefly through the abode of many persons in narrow rooms (as in prisons, ships and small dwellings of the poor), by which the air becomes infected (1785). Before all things he desired to create pure fresh air by ventilation in hospitals and dwellings, and on the other hand to banish all fumigations, since they only conceal the bad odor but do not improve the air. It was known that general *bathing* was of great use in fevers. Le Cat had patients who had been operated on for stone placed in a half bath after the operation. Boucher extolled baths for gunshot wounds; le Dran, after all surgical operations. Even in the field-hospitals Bilguer made baths possible, and in Nimes, where he had forty-one patients with putrid fever and dysentery under treatment, he had each one given a daily tub-bath with infusions of chamomile and other things. Incidentally let us notice internal medicine. In England they began to make use of cold water as an antipyretic remedy, especially

cold baths in typhoid. The merit of having energetically developed this method belongs decidedly to the Prussian physicians, Siegmund Hahn, father and son, who used cold water extensively for both internal and external ailments. (J. S. Hahn Sohn, "Unterricht von Krafft und Würkung des Frischen Wassers in die Leiber der Menschen," u. s. w., 1738.) Currie first used baths in typhoid methodically. Wright showered his typhoid patients with cold water, the earlier the better (1799), while Gregory had his bathed in it twice a day, after which he observed a reduction of the fever and a decrease in the pulse from 110 to 80 beats. Baths were recommended by Scott, who had his typhoid patients afterward rubbed with rough flannel, put in bed and given warm wine; likewise Dimsdale, who inserted a thermometer under the tongue of the patient to ascertain the degrees of fever. Even during the first days after the baths, which he considered more effective than bathing with a sponge, he observed an abatement of the fever and headache, and discontinued them only in case of great exhaustion. (In intermittent fever the Englishman Kellie observed the chill to be relieved in a few minutes when a tourniquet was applied to the right arm and the left thigh; he found that the tourniquet, applied to himself in a healthy condition, at first increased the number of pulse-beats and then continually decreased it (1794).

We will pass to the *arrest of hemorrhages.* The question as to how nature can stop the flow of blood was first answered by J. L. Petit (1731), by the evidence of a thrombus, and he thereby gave occasion for much investigation and contention. His thrombus consisted of an external coagulum adhering to the orifice of the artery (*couvercle*) and an internal coagulum arising at the end of the blood vessel itself (*bouchon*). Morand agreed with this view in part and first demonstrated that the inner and middle coats of the arteries constrict themselves, and thus retain the thrombus. He attached the greatest importance to the fact that the severed vessels recoil and shorten, and thus the force of the blood flow is diminished and finally the opening of the artery contracts and at last closes. Other surgeons, as Aikin and Gooch, who thought the formation of a coagulum at the natural heat of the body impossible, regarded the obstruction which they found in the arteries upon dissection, as a product of death. Again, others maintained that the arrest of blood by an obstruction is untrue, because after a little time one finds the end of a severed artery entirely closed up to a certain length and changed into a ligament (B. Bell and Theden). A chief role was allowed to be played by the coagulation of the blood extravasated into the cellular tissue, which exerts a pressure upon the arteries and by the inflammation induced by the ligature, which results in the withering of the constricted part and the adhesive cicatrization of the end of the artery (J. Bell). White even considered the obstruction as an impediment to the closing of the artery, because it held the passage open, and he advised removing it with a sponge. Kirkland also regarded the coagulation of the blood as injurious and rejected Petit's views, because in many cases a swoon will very quickly staunch a hemorrhage of even the large arteries. Pouteau occupied a middle ground, in that he admitted the formation of an obstruction but considered as the best means of closing the artery the swelling of its end and of the cellular tissue surrounding it, by which it is compressed; for he sometimes found the obstruction, sometimes not, and in the latter case observed that the end of the artery was closed by a solid callous scab; he therefore denied the necessity of the formation of a thrombus and declared against the retrocession of the blood vessels, because he often saw them extend beyond the surface of the wound. Richter also adhered to the double process, but at the same time to the retrocession; he maintained that opened arteries were closed either by a blood obstruction or by complete cicatrization, which usually extends to the next branch of the artery, in the latter way always in transverse incisions and *vice versa.* The demonstration of this double kind of arrest of hemorrhage he found in the fact that when the opening of the artery was closed by some external means, the blood behind stagnated and coagulated; but if close above the compressed or constricted point, a branch opened, the blood flowed there and consequently could not stagnate and form an obstruction. He doubted if this alone, in the first days after an injury, would contribute to the arrest of the hemorrhage of a large artery, because its force would soon expel the obstruction. Yet he did not doubt the existence of the thrombus, in general, and he added, as further evidence, the observation that in gunshot wounds one sometimes sees clots of blood float in the pus, which one must handle very carefully, because at its removal an excessive hemorrhage often arises. The dispute in regard to thrombosis entered upon a new stage when it was demonstrated that the thrombus organizes itself, and Jones published an excellent work in the year 1805, with the results of some fifty experiments on horses and dogs.

Surgeons were not united as to the various means of arresting hemorrhage, although the ablest of their time preferred the ligature, if in any way applicable, to compression or styptics. In flaming letters history teaches us how, in an inconceivable manner, one of the noblest treasures of surgery, *the ligature of blood vessels,* could lie buried for centuries; how, again brought to light, it was again forgotten for centuries; how, discovered for the third time, but bitterly contested, it was not forgotten from this time forward, but only after a long time was it accepted as one of the most precious gems belonging to surgery. The first period lay in antiquity; Hippocrates, Galen and Paul of Ægina used the ligature. The operation for aneurysm by the ancients, shows that they also bound up the main vessels with the needles. The Greek, Archigenes, is considered the discoverer of the ligature in amputation (97 A. D.); he said that the surgeon before amputating should bind up (*i. e.*, with strings) the blood vessels leading to the limb, and should then make them fast (*i.e.*, ligate them with the needle). If the ancients almost never employed the ligature in amputations it was not from ignorance of its manipulations, but because of the rarity of those operations at that time. They amputated only in cases of gangrene, and made it a principle in clean fresh wounds to bind up the blood vessels, but in putrescent wounds they arrested the flow of blood by cauterization. The ligature was forgotten and only in the twelfth century discovered by the Arabians, Albucasis and Avenzoar, and again used. By the former it was called "ligetur cum filo ligatione forti," by the latter, "ut primum liges extringendo caput ipsius venae quae est versus cor et postea incides,"

(Ullersberger).[1] And the Arabians were no further thought of.

For centuries the hot iron triumphed in general practice until, for the third time, Ambroise Paré, the surgeon of King Henry II., Francis II., Charles IX. and Henry III., in the sixteenth century, again brought the ligature to light. His great service consisted in defending ligature as the only safe method, in opposition to the barbarous method of his time, for stopping hemorrhage, the cruel burning of the amputated stump with a hot iron, amputating with redhot knives and inserting the stump into seething pitch and oil. As thanks for his operation, which, for a long time, was looked upon as a new discovery, it was decried and disparaged by the adherents of the hot iron. A contemporary, the envious Gourmellin, thus wrote of him: "An ignorant and at the same time rash man has lately, out of ignorance and pride. ventured to condemn the cauterization of the blood vessels with a hot iron after the amputation of limbs, a method which has been recommended by all the ancients without exception and has always been approved, and in its place has to introduce a new expedient, namely, the ligature of the blood vessels, something contrary to all the teachings of the ancient physicians, to all first principles, to all experience and to all sound reasoning. . . . Truly everyone who undergoes this butcher-like operation has reason to praise God if he comes out alive after this cruel and inquisitorial torture." Paré followed two principal methods. Most frequently he had his assistant draw out the arteries with his pincers (*bec de corbin*) and tie a thread around them, or he secured them with needle and thread if he could not readily isolate them. Some flesh was always bound in with the artery. It was no light task for Paré to abolish the hot iron, whereupon for justification of the ligature he based his claim upon Hippocrates, Galen and Avicenna. At the same time F. Würtz felt that the hot iron must be abandoned, when he said: "It is, in my opinion, such a horrible expedient that it should again be given over to murderers only. For I can readily believe that such an expedient was learned by hangmen's children." He had seen much pain and misery from the hot iron and permitted it for the most part only in thigh amputations, and in other cases he arrested the bleeding with alum. It must be admitted that Paré exacted a great deal of faith from his contemporaries, for he possessed but crude experience and was not in a position to demonstrate the effect of the ligature upon the blood vessels nor to establish its superiority over other methods; his technique itself was imperfect. Therefore, for a long time, general confidence was withheld and and the most celebrated surgeons of that time, such as Severin and Nuck, considered the ligature as very dangerous. Indeed, more than a hundred years must pass before it won the sovereignty over all other methods in surgery. The Germans learned to know its value earlier than did Paré's countrymen. Scultet and Fabricius of Hilden used it, the latter, however, only upon young and strong men. In France, Guillemeau, the pupil and friend of Paré, and Dionis were the only ones who, up to the end of the seventeenth century, knew how to appreciate it, and they did so only in a limited way, that is, they preferred it to the hot iron in amputating injured limbs. Wiseman performed the same service for English surgery. Nevertheless, during the first half of the eighteenth century in France, cauterization still prevailed and, in the Hôtel Dieu in Paris, was used exclusively in hemorrhages attending amputations.

(*To be continued.*)

[1] When Ullersberger made the reproach against our time (*Deutsche Zeitsch. f. Chir.*, ii, S. 260, 1873) that it falsely ascribes priority in ligature to Paré, while it is exclusively the fully authorized property of those two Spanish Moors, by whom he maintains this precious jewel was discovered, he overlooked the fact that, in the previous century, the position of Albucasis as regards ligature was cited by E. Platner ("Zusätze," i, 1776, S. 205) and this Arab is also mentioned by Sharp. Further, the accounts of Hippocrates and Archigenes were as well known to E. Platner as to Cocchius ("Graec. chir. libr.," 1754, p. 157), therefore the former does not ascribe the discovery of the ligature to the Frenchman Paré, but the great merit of reintroducing it. These things are not forgotten to the present time.

Synopsis of the Report of the Surgeon-General.

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,
WASHINGTON, D. C., Sept. 22, 1897.

SIR:—I have the honor to submit the following report of my administration of the duties pertaining to the office of the Surgeon-General of the Army.

Among the expenditures authorized by Congress for the fiscal year ended June 30, were those for artificial limbs, for surgical appliances and for trusses for persons disabled in the line of duty, for the Army Medical Museum, for the library of the Surgeon-General's Office, for the support and treatment of destitute patients in the city of Washington, D. C., for the construction and repair of army hospitals and for the support of the Medical Department of the Army.

Artificial limbs.—During the year ended June 30, 1897, there were furnished under the laws relating to artificial limbs 301 artificial legs, 7 arms, 4 feet and 1 apparatus; and the commuted value of an artificial leg was paid in 2,856 cases of amputated leg, of an artificial arm in 2,993 cases of amputated arm, and of an artificial foot in 69 cases of amputated foot. Commutation was paid also in 3,297 cases in which the use of a limb was lost. The money expended amounted to $555,347.51, of which $552,854.46 was from the current appropriation, $2,452.35 from the appropriation for 1896, and $40.70 from that for 1895.

Appliances.—The number of appliances issued during the year was 176, for which was disbursed the sum of $1,045.27 from the appropriation approved June 11, 1896, and 136.50 from that approved March 2, 1895, a total of $1,181.77.

Trusses.—There was expended in furnishing and fitting trusses to disabled soldiers under Sections 1176–78, Revised Statutes of the United States, and the Act of March 3, 1879, the sum of $7,268.80. The number of trusses issued and fitted during the year was 1,043.

The hospital corps.—The loss to the Corps during the year amounted to 273 men, but this was more than offset by a gain of 276 men by enlistment, re-enlistment, transfer, etc. The Act of March 16, 1896, reduced the number of hospital stewards, and fixed it thereafter at 100. There remained in service June 30, 1897, 98 hospital stewards, 99 acting hospital stewards and 513 privates, a total of 710 men.

The Hospital Company of Instruction at Washington Barracks and the smaller detachments in the Western departments contribute materially to the training of the men in their important duties, and serve also as depots from which vacancies in the respective departments are filled. The instruction given them includes nursing, cooking, first aid to the sick, litter and ambulance drill, pharmacy, assisting in operations and disinfection, taught both theoretically and practically, with field work as far as possible. The company at Washington Barracks received 46 men during the year, and from it 42 trained men were sent to other posts.

The appropriation for the support of the Corps for the fiscal year 1896–7 was $206,280. As this was more than sufficient, the appropriation for 1897–8 was reduced to $202,800.

Medical and hospital supplies.—The disbursements during the year ending June 30, 1897, from the appropriations made by Act of Congress approved March 16, 1896, for the expenses of the Medical Department of the Army, and from the balances of previous appropriations on hand at the beginning of the said fiscal year, amounted to $108,709.38.

Recently issued medical works and improved appliances of various kinds have been supplied to the hospitals during the year. A few of the principal posts have been provided with the Roentgen ray apparatus.

Therapeutic value of medicinal tablets.—During the year an investigation was made into the efficiency of the medicinal tablets issued from the medical supply depots. The results

showed that the tablets do not suffer any more from deteriorating influences than other preparations of the same medicines. They are valuable in presenting to the medical officer accurately divided doses while occupying little space in the medical chests; but they are not in every instance to be regarded as pharmaceutic preparations ready for administration. Tablets of bromids, iodids, etc., would be highly irritant to the gastric mucous membrane if swallowed without previous solution and dilution, and those containing more or less insoluble substances such as phenacetin, salol, sulphonal, etc., would be slow to act or even inert unless thoroughly disintegrated before administration. The necessity for suitable preparation for use in each case should always be held in mind.

Hospitals at military posts.—Great improvement has been made during the past few years in the hospital accommodations at many of our military posts. At the present time new hospitals are in process of construction at six posts: Forts Hamilton and Wadsworth, N. Y., Fort Hancock, N. J., Fort Monroe, Va., Fort Custer, Mont., and Fort Spokane, Wash. In 1896 a hospital was completed at Fort Logan H. Roots, Ark. In 1895 new hospitals were erected at Fort Myer, Va., Fort McHenry, Md., Plattsburg Barracks, N. Y., Fort Meade, S. Dak., and Fort Harrison, Mont., and in 1894 at Washington Barracks, D.C.

These hospitals are of brick, with a two inch air space in the exterior and no furring on the inside, the plaster being applied direct to the brick work and finished with soapstone. Pressed steel ceilings are used on each floor above the basement. Each building is heated by hot water and ventilated through galvanized iron ducts and brick flues by direct-indirect radiation. The basement is concreted, well ventilated, and usually contains a boiler room, coal room, several store rooms, a vegetable cellar and a large room under the ward wing which is used as a drill room for the detachment of the hospital corps in bad weather.

Providence Hospital.—The Act of Congress approved June 11, 1896, appropriated $19,000 for the support and medical treatment of destitute patients in the city of Washington, D. C., under a contract to be made with the Providence Hospital by the Surgeon-General of the Army. The amount of relief afforded under this appropriation was equivalent to the treatment of 113 patients throughout the year.

Army and Navy General Hospital, Hot Springs, Ark.—Twenty-five officers and 106 enlisted men were treated in this hospital during the calendar year 1896. Of the former 19, and of the latter 56 were returned to duty or left the hospital very much improved. Reports received from the surgeons of the various posts six months after the 56 men had been returned to duty, showed that 39 were doing full duty with their companies, 5 had been discharged on expiration of term of service but were in good health at the time of their discharge, 2 had deserted and 10 had been discharged on account of a recurrence of their disease.

Almost every case sent to this hospital is a case for discharge on certificate of disability at a post. All the benefits to be derived from the treatment there have been unavailing, and but for the special facilities afforded for treating such cases at the Hot Springs many men who are now returned to duty would become pensioners of the Government for years.

On my recommendation, in May last, the President directed the amendment of the regulations governing admission to this hospital so as to admit to its benefits honorably discharged soldiers and sailors of the regular and volunteer Army and Navy of the United States when there are vacant beds in the hospital for their occupancy. Circular No. 1, May 8, 1897, from this office, published full information for the guidance of applicants for admission. Since then 13 individuals belonging to the classes mentioned have taken advantage of the privilege. When the authority for their admission for treatment becomes generally known there is no doubt that many veterans of the war disabled by rheumatism and other diseases which the waters of the Hot Springs have an established reputation in benefiting will become applicants for admission.

Army Medical Museum.—The amount expended during the year on behalf of the Army Medical Museum was $4,882.76. The number of specimens added to the Museum during the year was 3,156, making the number on hand June 30, 1897, 36,897.

Library of the Surgeon-General's office.—The amount expended during the year on behalf of the Library was $10,000. There are now in the Library 123,924 volumes and 210,152 medical theses and pamphlets, the additions during the year having consisted of 3,580 bound volumes and 11,612 pamphlets. Volume ii, second series, of the Index-Catalogue, includes the letter "B" and forms a volume of 954 pages. It will be ready for distribution at the regular time. The appropriation for Volume iii, second series, having been made, the manuscript is in course of preparation for the printer.

Medical officers.—There were 108 medical officers reported to this office as having been on duty with scouting parties and on other field service during the year.

Deaths. Two surgeons with the rank of major.

Retirements. On request, after thirty years' service, one assistant surgeon-general with the rank of colonel; one surgeon with the rank of major. For disability, two assistant surgeons with the rank of captain. By operation of law, one assistant surgeon-general with the rank of colonel; one surgeon with the rank of major.

Promotions. Two deputy surgeons general with the rank of lieutenant-colonel to be assistant surgeons-general with the rank of colonel; two surgeons with the rank of major to be deputy surgeons-general with the rank of lieutenant-colonel; six assistant surgeons with the rank of captain to be surgeons with the rank of major; eleven assistant surgeons with the rank of first lieutenant to be assistant surgeons with the rank of captain.

Appointments. Eight assistant surgeons with the rank of first lieutenant. These were selected by a board convened in Washington, D. C., Sept. 23, 1896. Forty-seven candidates were invited to appear before the board; six failed to appear; twelve were rejected for physical disability; fourteen were found disqualified professionally; three were rejected at preliminary examination; four withdrew after partial examination. Eight were found qualified and were recommended for appointment.

Vacancies. There are now, June 30, 1897, five vacancies in the Medical Department.

The Army Medical School.—The report of the President of the Army Medical School on the work of the past year shows the earnest endeavors of the members of the Faculty to make the course of study one of the best of its kind with the facilities at command. The practical instruction in operative surgery is a valuable preparation for the responsibilities of service in the Army, where the surgeon has frequently to act for himself in cases which in civil life would be treated only after professional consultation. The laboratory work in bacteriology and sanitary chemistry is also of great importance. The teachers of these branches have reported as the result of their experience during the past three sessions that a course of four months does not give them time to deal with their subjects in a thorough and satisfactory manner. To enable them to do this G. O. 43, War Department, A. G. O., Washington, D. C., July 6, 1897, extended the course of instruction from four to five months, the session beginning as heretofore, on the first Monday in November.

The student officers during the past year are credited with having pursued the course with an interest which gave satisfaction to the Faculty. Nevertheless, it appears to me that better results would be obtained if the class standing of the students at the end of the session were to have weight in determining their relative rank. The work of a student whether good or bad, during the course of instruction, has no effect upon his relative rank, which is at present determined by competitive examination before entering the school. The passage of an Act of Congress giving weight to the course of instruction in determining the lineal rank of officers appointed on the same date would be of such benefit to the School and to the Medical Department of the Army.

Recruiting.—The total number of men examined for enlistment during the calender year was 14,659, of whom 8,654 or 590.35 per 1,000 were accepted, 5,448 or 371.65 per 1,000 were rejected on primary examination and 557 or 38.00 per 1,000 subsequently declined enlistment. The ratio of accepted men per 1,000 of those examined is considerably larger that the rates of previous years. In 1893 the rate was 433.35; in 1894, 451.04; and in 1895, 489.83. This must be regarded as meaning that better men physically are coming up as candidates for enlistment for examination. The rejections among the colored men were relatively somewhat more numerous than among the white candidates for enlistment; 379.00 as compared with 371.04 per 1,000 respectively. The report contains some interesting anthropometric data, showing that although the foreign born recruit has the advantage over the native white in weight and chest measurement, the latter is taller by half an inch.

Physical examination of cadets, United States Military Academy.—The report of a medical examining board convened at West Point, N. Y., Aug. 20, 1894, indicated that ten cadets had become affected with heart disease while at the Military Academy. The usual character of the disease as reported was said to be aortic obstruction. The board found these cadets "physically disqualified," but recommendation was made that they be continued at the Academy on probation for six months,

and Major George H. Torney was directed to make a careful investigation of the cases. As a result of continued observation the conclusion was reached "that in all except one case the murmur heard in each individual at the time of the examination of these cadets in 1894 was due to temporary irritability of the heart caused by the nervous excitement attending the ordeal of examination.

Identification of deserters and other undesirable men.—This system continues to be an excellent safeguard to the Army. There are now in the files of this office data sufficient for the identification of 12,640 men whose records show them to be undesirable associates for honorable young men serving in the ranks and who can be denied enlistment as soon as their cards are received from the recruiting office.

Medical Department of the National Guard.—No medical officer of the Army was on duty during the year with troops of the National Guard, but the meeting of the Association of Military Surgeons in Columbus, Ohio, afforded an opportunity to many of our medical officers of forming a professional and social acquaintance with delegates and others belonging to the Medical Staff of the National Guard of many of the States.

The second Pan-American Medical Congress was held in the City of Mexico, Nov. 16-19, 1896. Colonel Charles H. Alden, Assistant Surgeon-General, in his report of the meeting, gives a general view of the proceedings of this important medical congress and of the advantages derived from it. He pays a graceful tribute to the high standard of the medical profession in Mexico and makes brief but suggestive mention of the great sanitary improvement in progress and of the excellent condition and advanced equipment of its hospitals, schools, laboratories, etc.

Uniformity in medico-military statistics.—Embodied in the report are the data concerning recruiting and the movements of sick in our army, tabulated on the forms suggested by the International Commission which met at Buda-Pesth in 1894.

Health of the Army.—The health of the Army has been excellent during the calendar year 1896, the medical statistics of which are embodied in the present report. In the previous year all the rates that are usually considered by statisticians and health officers as throwing light on the physical condition of a community were lower than any former year of the history of our Army. Practically the rates of 1895 and 1896 are the same, but when accurate expression is given to them in figures those of 1895 continue to be the standard of comparison as the lowest recorded rates.

The admissions to sick report per 1,000 of strength were 1,110.39 as compared with 1,110.22 in the previous year, and with 1,087.73 in 1894, which was the lowest recorded admission rate for all causes; but it is to be observed that an excess of injuries in the past two years raised the total rate, while the admission rate for disease in both years was lower than in 1894, 830.65 during the past year, 837.53 in 1895 and 845.52 in 1894. The average length of time each case was under treatment was 11.19 days, as compared with 11.14 in 1895 and 11.69 as the average of the previous decade. The number of days lost on account of sickness for each man in the Army was 12.43 days, as compared with 12.37 in the previous year and 14.93 the average of the previous decade. The number constantly non-effective per 1,000 of strength was 33.97 as compared with 33.89 in 1895. The non-effective rate during the decade prior to 1895 averaged 40.92 per 1,000 of strength. The discharge rate for disability was 10.15 per 1,000 of strength, as against 9.15 the previous year; but that the lessened non-efficiency of recent years does not result from discharging men for disability is easily recognized when we observe that the discharge rate of the decade prior to 1895 was 21.77 per 1,000 of strength. In those ten years a higher non-efficient rate prevailed, notwithstanding the considerably larger number of men discharged from the ranks on account of persisting disability. The death rate from all causes constituted 5.44 per 1,000 of the strength, not much higher than that of the previous year and much lower than the average annual rate, 7.5 of the previous ten years. The corresponding rates from disease were 3.83, 3.55 and 5.10; from injury 1.62, 1.61 and 2.41.

It may be well to notice the great improvement that has taken place in the past few years in the sanitary condition of the colored troops, as manifested by their lessened rates of sickness, disability and death. The white troops have participated in the improvement, although their rates have not fallen so rapidly as those of the colored men. There was no doubt greater room for improvement in the sanitary status of the colored troops and the men may have responded with more earnestness to efforts in this direction. During the past year the total admission rate for all causes among the colored troops was 868.88 per 1,000 of strength, as compared with 1,132.49 among the whites for the same year, and as compared with 915.88 among themselves in the previous year, and with 1,368.64 their own annual average for the previous decade, the annual average of the white troops having been 1,284.95. The non-efficiency from all causes among the colored troops during the year was 25.75 per 1,000 of strength, as compared with 34.72 among the white troops. The colored soldier lost 9.42 days from disability during the year, the white soldier 12.71; and the average time of treatment of each case was among the colored troops 10.84 days, among the white 11.22 days. The causes of disability from which the colored men suffered less than the white troops were malarial fevers, venereal diseases, alcoholism, diarrhea and injuries; those from which they suffered more were neuralgia, rheumatism and myalgia, tonsillitis, colic and constipation, conjunctivitis and pneumonia.

Health of the Military Departments.—The admission rate varied in the different Military Departments from 1,246.37 per 1,000 of strength in the Department of the East to 762.18 in the Department of California. It was above the Army average in the Departments of the East, Texas and the Platte, the Colorado and the Missouri; but this was offset by lessened rates in the Departments of the Columbia, Dakota and California.

The rate of non-efficiency or constant disability was above the Army average of 33.97 per 1,000 of strength in three of the departments, the Missouri, Texas and the Platte, but the highest rate, that of the Department of the Missouri, was only 37.23. The rates in the Departments of the East and the Colorado were below the average, but above 30 per 1,000 of each command. Those of the Departments of Dakota, the Columbia and California were below 30 per 1,000, that of California, the lowest, being only 24.02.

The death rate in the Department of Texas, 9.28 per 1,000 of strength, was considerably higher than the average of the Army, 5.44. This rate in the Departments of the Missouri, the Colorado and the Platte was slightly above the average, while in the Departments of Dakota, the East, California and the Columbia it was below the average, the rate of the last mentioned department being only 2.01 per 1,000 of strength.

The rates of discharge for disability varied from 12.29 per 1,000 of strength in the Department of Dakota to 7.15 in the Department of California, as compared with the Army average of 10 15. In three of the other Departments, Texas, the Colorado and the Missouri, the rates were above the average; in the Departments of the Platte, the East and Columbia they were below the average.

Considering all the rates for the calendar year the Department of Texas had probably the worst record and the Department of California the best record among the military departments.

The highest and lowest rates at individual posts.—The largest admission rates for the year were reported from Washington Barracks, D. C., and Fort Myer, Va., 2,250.71 and 2,250.00 respectively per 1,000 of strength. These two posts have had high rates for a number of years. Malarial infection was the principal cause of these high rates. An investigation was made during the past year by Surgeon W. Reed, who concluded that the fevers at both posts were to be attributed to the marsh lands of the Potomac valley. His report was published in my last annual report, page 66. The malarial rate continued high at Washington Barracks during the past year, but the cases at Fort Myer were relatively not so numerous. These two posts, although heading the list of sickness as represented by frequency of admissions, take only the twelfth and fifteenth place respectively when the posts are arranged in order of non efficiency from sickness. Following Fort Myer in frequency of entries on the sick report are Fort Clark and Camp Eagle Pass, Texas, each with over 1,500 entries per 1,000 of strength; Fort Slocum, N. Y., and Fort D. A. Russell, Wyo., with over 1,600, and Fort Riley, Kansas, Fort Monroe, Va., Jefferson Barracks, Mo., Fort Wingate, N. M., and Fort Barrancas, Fla., with over 1,500. The causation of these rates are stated in discussing the health of the Departments. Jefferson Barracks, Mo., had the highest rate, 67.23, of constant sickness, although only ninth in frequency of admissions. This was owing to the prolonged duration of its fever cases, malarial and typhoid. Two other posts, Camp Eagle Pass and Fort McIntosh, Texas, had a constant sickness of over 60 per 1,000 of strength. Three posts, Fort Barrancas, Fla., Fort Thomas, Ky., and San Diego Barracks, Cal., had each over 5 per cent. of constant non-efficiency. Following these in the order of diminishing rates, are Forts Clark and Brown, Texas, Fort Wingate, N. M., Fort Crook, Neb., Fort Monroe, Va., and Washington Barracks, D. C., the last with a rate of 44.51 for the year. Fort Yellowstone, Wyo., had the best medical record during the year, it having had the lowest admission and non-efficient rates, with no death and no discharge. Its admission rate was 398.15, with less than 1 per cent. of constant

sickness, 9.59 per 1,000. Including this garrison there were eight posts which had an admission rate of less than 600: Alcatraz Island, Cal., 477.61, Fort Porter, N. Y., 586.96, Angel Island, Cal., 523.44, Fort Assiniboine, Mont., 540.60, Benicia Barracks, Cal., 540.67, Fort Trumbull, Conn., 558.82, and Fort Wayne, Michigan, 568.00. Sandy Hook Proving Ground, N. J., had less than 1 per cent. of constant sickness, 9.71 per 1,000; Benicia Barracks, Cal., had 13.96, and the large post, Fort Assiniboine, Mont., 1812.

Typhoid fever.—The admission rate for typhoid fever, 5.89 per 1,000 of strength, with a non-efficiency of .85, is an increase over the rates of the previous year, which were 4.32 and .67. The absolute number of cases was 148, of which 17 were fatal. The largest number of cases occurred at Fort Brady, Mich., 15, with 1 sent in from the field; 12 were reported from Fort Logan, Colo., 11 from Fort Sam Houston, Texas, 10 from Jefferson Barracks, Mo., 8 from Fort Sill, Okla., and 7 from Fort Custer, Mont. The remaining cases were scattered, one, two or more at each of forty-two different posts.

With the view of aiding in the diagnosis of doubtful febrile cases, and of determining at the same time the diagnostic value of the changes in the bacilli of typhoid fever when mixed with the blood of a typhoid fever patient, medical officers were requested to forward to this office samples of blood from cases of fever, together with a clinical record of each case to date, and to follow these with a special report of the further progress of the case on its completion. Microscopic slides in slide boxes were sent to each of the posts, with directions for obtaining and mailing the samples of blood. On the arrival of each sample at this office it was sent for examination to Dr. Walter Reed at the bacteriologic laboratory of the Army Medical Museum. The clinical records were not submitted to Dr. Reed, but were retained in this office for consideration in connection with the laboratory results reported. The diagnostic method adopted was that brought into practical use by Dr. Wyatt Johnston of the Provincial Board of Health of Quebec. This method depends on the action of a weak aqueous solution of the suspected dried blood upon a culture of the typhoid bacillus grown in a liquid medium. Observtions were made on the blood of 71 cases of disease. In 27 well-defined cases of typhoid fever positive results were obtained in 25. A negative result was furnished by one case, which gave positive results with serum of a blister. In one case incomplete were followed by negative reactions. In 19 cases of well-defined diseases, not fevers, negative results were obtained. From the results in these 46 cases a positive reaction would be strongly suggestive of the presence of typhoid, while a negative reaction would require to be sustained and verified at a later date to show that typhoid was probably not present. There remained 25 febrile cases in which observations were made. In 19 of these the symptoms were not characteristic of typhoid fever. These were, with one exception, cases of so-called Florida fever and Texas fever; but each of these cases gave positive reactions in the laboratory, and it is extremely probable that they were in fact cases of typhoid infection. In 4 of the remaining cases the reactions were negative, but the clinical records were indefinite. The single remaining case, regarded clinically as a remittent fever, was the only case of fever probably not typhoid in which a doubtful reaction was obtained.

Malarial infections.—The admission rate for malarial infections for the year was 83.08 and the rate of nonefficiency 1.65, as compared with 82.56 and 1.70 in 1895, and with 96.67 and 2.48 as the average of the decade 1885–94. The total number of cases was 2,087, of which 1,771 were intermittents, 297 remittents and continued malarial fevers, 1 pernicious and 18 registered as malarial cachexia. One death and one discharge were occasioned by these diseases. The admission rate for the colored troops was 16.63, for the white troops 89.16.

The posts which had high rates were mostly Eastern posts, Washington Barracks, D. C., and Fort Myer, Va., being at the head of the list with 1,071.22 and 644.37 respectively, giving 9.82 and 5.83 of nonefficiency. Jefferson Barracks, Mo., followed with 356.52 and the high nonefficient rate of 16.05. Fort Sill was the only Western post that had a rate, 290.64, approaching those found at these Eastern stations. Forts Clark and McIntosh, Texas, which formerly had large rates, reported during the year only 13.48 and 16.81 admissions respectively per 1,000 of strength. Even Fort Brown had only 90.09 and Fort Ringgold 103.17.

Diarrheal diseases.—The admission rate for diarrheal diseases was 80.02, as compared with 85.14 during the previous year, and with 121.64 the annual average of the preceding decade. The colored troops have participated in this progressive relief from diarrheal attacks to a greater extent than the white troops, their rate for the past year having been only 48.93. Fifty-four cases of acute dysentery with no death, and three of chronic dysentery with one discharge for disability, are included in these diarrheal cases.

Venereal diseases.—The admission rate for these diseases, 78.08, was higher than in 1895, when it was 73.72, while the rate for the previous decade was 76.92. As the rates have been practically stationary for more than a dozen years, we may infer that the minimum prevalence of these diseases under existing conditions has been reached. The slight increase during the past year affected the white troops only. The rates for the colored troops fell from an average annual rate of 80.64 for the decade to 56.53 for the year.

Alcoholism.—The admission rate for alcoholism was 29.06 for the Army as a whole: 31.20 among the white, and 5.70 among the colored troops. Seven deaths among the whites were due directly to this cause. This is a slight improvement on the record of 1895, which shows 30.11 as the rate for the Army, with 32.16 and 6.47 for the white and colored respectively.

Rheumatic affections.—The admission rate for these affections, including rheumatic fever, muscular rheumatism and myalgia, and chronic rheumatic arthritis, was 59.68 per 1,000 of strength; the rate for the colored troops being 71.26, and for the white troops 58.61. The Army rate for 1895 was 64.08, and the average annual rate of the preceding decade 79.33, so that the past year compares favorably in this respect with former records.

Tuberculosis of the lungs.—During the year there were 40 cases of tuberculosis of the lung, resulting in 34 discharges for disability and 6 deaths. These gave an admission rate of 1.59. Among the white troops this rate was 1.52; among the colored troops 2.38, while the respective discharge rates were 1.08 and 3.17, and the death rates .20 and .45. This is an improvement on the previous year, when the admission rate was 2.42, and on the annual average of the previous ten years when it was 3.24.

Pneumonia and pleurisy.—Fifty cases of croupous pneumonia, 7 fatal, were admitted to sick report during the year, the average duration of each case being 29.1 days. Sixteen cases of catarrhal pneumonia, 2 fatal, were also recorded, their average duration 45.1 days. Thirty-seven cases of pleurisy, 2 of which resulted in discharge for disability were recorded during the year. This was a great improvement on the previous year, when 71 cases with 2 deaths and 2 discharges were reported.

Injuries.—The admissions for injuries during the year were equivalent to 279.75 per 1,000 of strength with 8.73 constantly disabled, 1.62 deaths and 2.02 discharges on account of permanent disability. These differed but little from the rates of the previous year. Admission 272.69; nonefficient 8.46; death 1.61; discharge 2.34.

More than one-half of the injuries consisted of contusions and sprains, giving a constant disability of 3.32 per 1,000 men. Ninety dislocations were reported and 193 fractures not gunshot; 7 of the latter were fatal and 8 were discharged for permanent disability. Fifty-three cases of gunshot wounds were reported, 14 of which died and 10 were discharged on surgeons' certificates. There were 93 cases of exhaustion from fatigue or exposure, 23 of sunstroke and 47 of frostbite; none of these were fatal. Seventy-six hernial cases occurred during the year, 16 of which were discharged for disability. Only 12 cases of suicide were reported as having occurred during the year as compared with 19 during the previous year.

Influence of age, arm of service, nativity and length of service on susceptibility to disease.—Table xvii of the report consolidates the medical statistics of the army for the past seven years 1890–96 inclusive, and gives under the various headings the mean annual rates for that period. The ratios are those of admission, constant sickness, discharge and death for officers and enlisted men separately. They are arranged for various diseases and classes of disabling causes, according 1st, to corps or arm of service; 2d, to age by periods of five years; 3d, to nativity, and 4th, to length of service. Many interesting points connected with the prevalence of disease are brought out by the study of this table.

Medical and surgical reports and operations.—The report gives lists of special reports on medical and surgical subjects, with extracts from some of those that are of general professional interest. Many valuable reports of surgical cases and operations are also submitted.

Radical cure of hernia.—During the past two years 79 cases have been operated on by army surgeons. The history of each case has been followed as far as possible to date with the development so far of three instances of recurrence. In one a second operation was performed with success; in the two others the men declined further operation and were discharged for disability. In both instances the phlebitis affected the left leg,

the operation having been performed on the opposite side. In one the disease was mild and did not delay convalescence; in the other the phlebitis became developed afterward in the right internal saphenous vein and the man was discharged for disability about six months after the operation.

SANITARY CONDITION OF THE ARMY.

Quarters.—The quarters provided for the enlisted men of our Army at posts recently built are excellent in their sanitary arrangements. At some of the old posts the buildings are more or less in want of repair, some times over crowded, with inadequate ventilation and primitive methods for the removal of wastes. Every year, however, shows some improvement in the condition of these posts. It is to the credit of those concerned that when attention is called to remediable sanitary faults by the monthly reports of the medical officer, immediate action is taken by the commanding officer if it lies within his power, or by an allotment of money for the purpose by the Quartermaster's Department.

On account of the insanitary condition of the quarters occupied by married soldiers at many of our posts, I recommend a return so far to former methods as to provide public quarters for a limited number of married men in each organization, all others being strictly prohibited from having their families at the post. A provision of this kind would be regarded as a privilege awarded to deserving soldiers, and would permit the whole of the huts and shanties now occupied to be destroyed.

Drainage and sewerage.—Local defects in drainage with increase of malarial fevers, tonsillitis and catarrhal affections of the air passages, were reported from several posts. In most instances remedial measures were promptly instituted. Privy pits still continue in existence. Dry earth closets are being substituted for them at Fort Keogh, Mont. The dry earth system gives satisfaction at military posts, but the utmost care is needful in carrying out the details. Some faults in plumbing were discovered and remedied. Improvements in the systems of sewerage have been effected at many posts.

Water supplies.—The water supplies of our military posts have been carefully studied by medical officers with the view of preventing the occurrence of typhoid fever. It is not possible to indicate in a synopsis the many points of interest upon which reports have been submitted. Commanding officers have favorably endorsed the recommendations in the reports of their local medical officers, and the Quartermaster's Department has carried into effect many suggestions for improvement.

Food.—The rations of the men have been reported during the year as ample in quantity, well cooked and of excellent quality. The milk supply of two posts was criticised adversely, and the reports in these instances are suggestive of the possibility of similar conditions at other stations. The Emergency ration was tested by Surgeon Charles Smart on field service with Troop E, First Cavalry, in Oklahoma. A full report on the subject was submitted, showing the success of the expedition in proving the value of the ration in sustaining the men under conditions of emergency and recommending that troops should be accustomed to its use when out from their permanent stations on practice marches and field maneuvers.

Clothing.—The clothing issued appears to give general satisfaction. Greater care is suggested by one medical officer in fitting the men with shoes. His recommendation is that on the enlistment of a man the company shoemaker should measure the man's foot, that a record should be kept of this measurement and that on drawing shoes this measurement should be adhered to.

Personal cleanliness.—Much has been done in the past few years to improve the facilities of the men for bathing, so that during the past year only one post, Fort Du Chesne, Utah, has attracted attention in this regard. Respectfully submitted,

GEORGE M. STERNBERG,
Surgeon-General U. S. Army.

HON. RUSSELL A. ALGER,
Secretary of War.

PRACTICAL NOTES.

Formalin in Herpes Tonsurans.—Vidal of Barcelona observed the commencement of a new growth of normal hair in a week with five local treatments with 40 per cent. formalin.—*Wien. Klin. Woch.*, August 5.

Ovarian Extract in Basedow's Disease.—Three cases of Basedow's disease evidently connected with ovarian atrophy or hypoplasia, rapidly improved by the ingestion of ovarian extract, are reported by L. Seeligmann, *Semaine Méd.*, August 4.

Effective Sterilization of Catgut and Silk with Sublimate and Ether.—A French army surgeon, Dr. Merlin, announces that a 1 per cent. solution of sublimate and ether renders catgut, silk and silkworm guts absolutely aseptic, while not detracting in the least from their flexibility or strength.—*Dauphine Méd.*, No. 7.

Iodized Peptone, Substitute for Iodoform.—The action of metallic iodin on peptone produces a brown soluble powder, powerful odorless antiseptic, and an efficient substitute for iodoform, according to V. P. Garmachew. It sterilizes pus in fifteen minutes, and kills anthrax cultures in an hour at the proportion of a tenth; favors cicatrization, etc.—*Semaine Méd.*, August 4.

Prevention and Curability of Deafnesss and Dumbness.—If the ear troubles of infants are not attended to promptly they may become chronic and terminate in total deafness, not recognized for a long while, as the infant is too young to talk. This is the etiology of many cases of deafness and dumbness, according to Verdos, which could have been prevented by local treatment in time.—*Archivos Latinos de Rhin.*, etc., No. 73, 1897, in *Presse Méd.*, August 12.

Iodoformed Ether in Hydrocele.—The technique of the injections of 10 per cent. iodoformed ether, with which Reclus has been so successful in hydrocele, is very simple. The hydrocele is first punctured or lanced and the serosity allowed to escape, after which he injects 3 to 8 c.c., with a Pravaz syringe of corresponding size. There is no pain and the patient can resume his usual life and occupations the same day.—*Presse Méd.*, July 31.

Nutritive Value of Subcutaneous Injections of Oil.—It is reported from Turin that 30 to 200 grams of olive oil injected into the subcutaneous tissues are absorbed rapidly and effectively, serving as nutriment, as evidenced by the increase in weight and general well being. This method of alimentation is therefore recommended whenever rectal alimentation is necessary. It reduces the amount of nitrogen eliminated, and has proved especially effective in two cases of diabetes.—*Semaine Méd.* July 28.

Alkalines Required to Destroy the Pneumococcus.—The danger of infection of the meninges from ocular affections due to the pneumococcus is shown once more by a case reported by de Lapersonne, in which fatal meningitis followed enucleation of an eye on account of traumatism in a child. The pneumococcus is not destroyed by most antiseptics; sublimate, for instance, does not dissolve its capsule. He has found most effective a solution of chlorinated lime, 1 to 60, which he recommends for the purpose.—*Nord Méd.*, August 1.

Gastro-Jejunostomy for the Relief of Gastrectasis.—In a communication presented to the Missouri State Medical Society, Cordier (*Medical Record*, Sept. 25, 1897, p. 441) offers the following conclusions: 1, carcinoma of the pylorus, even though removed, returns quickly and always kills; 2, pylorectomy is attended with a high mortality and is not a justifiable surgical procedure in cases of advanced carcinoma of the pylorus; 3, gastrectatis due to malignant closure of the pylorus is best treated by gastro jejunostomy; 4, the operation advised by von Hacker best meets the indications; 5, it is not necessary to twist the bowel in making an anastomosis to prevent bile from entering the stomach; 6, the anastomotic opening in the stomach should be at the most dependent point of the dilated organ; 7, the operation is attended with a low mortality; 8, in all cases in which marked dilatation of the stomach exists and is accompanied by emaciation, pain and invalidity, the operation of gastro-jejunostomy should be performed; 9, the relief of pain due to the effort of the stomach to relieve itself follows this procedure at once, the patient gains rapidly in weight, and if non-malignant disease be present his former good health is restored.

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SATURDAY, OCTOBER 16, 1897.

THE INFLUENCE OF THE SANITARIAN IN THE EXPLORATION AND COLONIZATION OF TROPICAL COUNTRIES.

The important rôle played by bacteriology and hygiene in the successful exploration, development and colonization of the tropic countries is a subject sometimes neglected in the literature from these regions. Side by side with the bold navigator, the intrepid explorer, and the persistent engineer, the sanitarian has worked to rescue the riches of the unknown tropics for the overcrowded and overworked inhabitants of civilization.

Reviewing the subject of colonization from its earliest times, we are struck with the comparative ease and freedom from danger with which the emigrant of today accustoms himself to his new surroundings. Before the dawn of scientific medicine the frightful mortality among the early colonists forbade all but those of the most reckless natures to leave their homes to face what seemed almost certain death. The substantial, purposeful emigrant, the true backbone of a successful colony, turned from the tropics to less profitable but more salubrious climates. There has been a recent disposition to credit the pioneers in engineering and road-building with the glory of having opened the dark continents to commerce and colonization, but without the knowledge and practical advice of the sanitarians they would have all been gathered to their fathers long before their plans were beginning actualities.

In the early days the few foreigners who were spared to live in the tropics were supposed to have undergone an especial adaptation or acclimatization; and it is interesting to study to what extent such immunity is possible. The atmospheric element of danger in the tropics can be partly overcome by prudence in early exposure and certain protective measures, and the system may become gradually habituated to its new physical environments by a species of adaptation in which the whole physiologic organization is modified. But with the first generation at least this acclimatization is very superficial and ephemeral, as any marked indiscretion or fatigue destroys the new equilibrium.

Turning to the consideration of the early means of protection against the pathologic elements of danger, we find that the only immunity was that acquired by recovery from a first attack of certain infections, such as yellow fever; but this immunity does not hold good for the great majority of tropical diseases; in fact the more common diseases are of a distinctly relapsing type. It is thus easy to see the shortcomings of the natural protection by acclimatization. It was only after frightful mortalities through several generations that a race was evolved adapted to its surroundings.

With our modern bacteriologic and hygienic knowledge we are supplied with the means of what, for all practical purposes, is the equivalent of an immediate adaptation. By observing the prophylactic laws of living evolved from a patient study of tropical hygiene, and by bacteriologic examination of the aliments and soils, the colonist is protected against a great number of tropical diseases. The mortality from dysentery has greatly diminished among colonists furnished with potable water. Defective alimentation is the cause of many colonists' diseases, such as scurvy and beri-beri, both of which may be prevented by dietary regulation. With modern means of transport insufficiency of the necessary variety of food is inexcusable. The first instructions of the tropical emigrant of today are in personal and public sanitation and the advice and services of the scientific sanitarian are the most valuable in the establishment of a tropical colony.

The struggle against malarial infections is the most difficult; but here again the sanitarian and therapeutist are slowly depriving this plague of its horrors. More healthful building sites are chosen, pure water supplied, stringent prophylactic measures instituted and abundant medicaments furnished. Extra care and intervals of rest are given to men working in recent excavations and in the malarious lowlands.

To one unfamiliar with the recent sanitary reforms in the tropics the good results therefrom are astonishing. According to statements made by M. FIRKET of Liége in the discussion of the colonization of the Congo Country, before the International Congress of Hygiene and Climatology, in Brussels, August, 1897, by the application of vigorous sanitary measures, the mortality in certain African colonies has fallen from 85 in 1,000 for the English and 170 in 1,000 for the

Dutch, to 17 in 1,000; also by good sanitary organization in the Dutch Indies the mortality of the colonists has been brought far below that of the natives. Similar results are reported from Cochin China, and they are directly due to a knowledge of hygiene, and not to the agency of acclimatization.

Should the recent discovery of the micro-organism of yellow fever lead to the establishment of a specific for the disease, surely there will speedily follow reliable prophylaxis and therapeusis for the allied obscure intestinal and other fevers now indefinitely called malarial, and the greatest hinderance to emigration to the rich and undeveloped tropic countries will be removed.

Even today we find the European living comfortably and safely in what were formerly considered valleys of death. It is no vain hope that the sanitarian of the future will successfully lead the way into those unknown recesses of the earth where heat and disease have defied all human energy and ingenuity, enabling those commercially and industrially constrained in the old world to safely partake of man's great heritage —the fulness of the earth. *Let us have a Department of Health!*

THE ETIOLOGY OF ACUTE ARTICULAR RHEUMATISM.

While acute articular rheumatism presents the general clinical features of an infectious disease, bacteriologic confirmation is yet wanting. A number of observers have found in the blood, the transudates and the secondary lesions of patients suffering from this disease different micro-organisms to each of which specific etiologic significance has been attached; but the evidence is not of such a nature as to be accepted as conclusive. On the other hand in many instances the results of bacteriologic examination have been of a negative character. Attributing these discrepancies to the use of varying and perhaps unsuitable culture-media RIVA of Parma (*Centralblatt für Innere Medicin*, Aug. 14, 1897, p. 825) undertook to harmonize the resulting diversity of opinion by using as a culture-medium fluid obtained from the tissues in which it may be supposed that the hypothetic specific micro-organism resides. With this end in view he secured fresh joints from horses, which he opened and broke up, and then boiled, carefully saving the synovial fluid. To the resulting concentrated broth he added in customary admixture peptone, sodic chlorid and fish gelatin in the proportion of from 8 to 10 per cent., or from 1 to 2 per cent. of fucus crispus; and finally a small quantity of glucose (from 1 to 2 per cent.) and sufficient lactic acid to maintain a feebly acid reaction. As culture-media were employed: the broth thus obtained, with and without fucus and gelatin; the pure synovia; the fluid obtained from inflamed joints and that from a case of traumatic hydrarthros; and finally, cultures were attempted with the blood of patients suffering from rheumatism. Eight cases were studied by the means indicated, seven of simple, mild uncomplicated rheumatism, and one of severe type, with pleuritis, pericarditis, pneumonia and nephritis. The material for study was obtained in all instances from the knee-joint; in three the blood also was studied and in one also the pleuritic fluid. The usual antiseptic precautions were observed. In every instance a positive result was obtained, colonies developing in the culture-media slowly and sparsely at ordinary temperatures (15 to 17 degrees C., 59 to 62.6 Fahr.), and more rapidly at from 35 to 37 degrees C., (95 to 98.6 Fahr.). The appearances on microscopic examination were variable. Young cultures exhibited roundish bodies that subsequently became oval in shape and varied in size between leukocytes and a large torula. These took the usual stains but not those used to demonstrate spores. They are designated pseudo-spores. In the hanging drop the bodies described are replaced by two forms of bacilli. 1. Very large bacilli, which appear sometimes homogeneous, sometimes segmented, staining feebly and immotile. 2. Small bacilli, often collected in pairs and united at an angle and actively motile. These bacilli proved to be sporogenous, the spores being principally central in the small bacilli, terminal in the large ones, having a longitudinal form, and at an advanced stage of development being generally free. The belief is expressed that the organisms described are the specific causative factors of acute rheumatism, and that the disease is invariably of constitutional nature, although the joints especially are affected.

INSANITY FROM IDLENESS IN PRISONS.

In the October issue of the *Albany Medical Annals* under the title of "Idleness and Insanity in Prisons: an Answer," there appears an editorial comment upon a leading article in the JOURNAL of July 31, relative to the New York statute prohibiting convict labor. That article was avowedly instigated by a paragraph in a lay publication that seemed to deserve attention, and which was only one of several that have appeared in the secular and religious press of New York State and elsewhere, that reflected severely upon the New York law. This one was certainly circumstantial enough in its statements and being sent abroad as a press dispatch it naturally obtained credence. It seems, however, to have been incorrect in its details, as the *Annals* claims, and accepting its correction, the JOURNAL willingly acknowledges that the editorial criticised was prompted by an erroneous item in the public press.

Admitting the unreliability of the text in this particular case, however, is not an acknowledgment that the deductions of the editorial referred to were also wrong, or that any of the opinions therein expressed

are repudiated. There is nothing in them to take back, and the answer in the *Annals* appears weak in many points. The only ground on which such laws as that of New York can be justified is the competition of convict with outside labor, which it is believed is a much less serious matter than the leaders of labor organizations would have us suppose. What bad effects it has can probably be reduced to a minimum, as is of course desirable, by judicious State regulation without condemning the prisoners to idleness, reducing the resources of prison government, and adding a heavy burden to the State in the loss of prison self-support, by abolishing prison labor altogether, or practically doing the same by impracticable limitations. There is more than one side even to this narrow economic view of the question; the interests of the State and its citizens as a whole are to be considered as much as those of any special class. We would find work for the convict that would keep him busy without having him encroach upon the legitimate products of respectable labor; such as breaking stone for roads, and the like, but at all events the interests of humanity require that he shall do something.

The *Annals* critic says: "There are abundant proofs to refute the statement that idleness and confinement are prolific causes of insanity in prisons," and seems to think that he has proved this proposition by a couple of quotations and a reference to a temporary increase of insanity in the Elmira Reformatory. A reference to almost any respectable authority on insanity would be sufficient to show that he is mistaken in this utterance, which is, moreover, contrary to the well known principles of mental hygiene. The fact that criminals as a class are degenerates does not alter the case; we have no more right to force mental disease upon a predisposed individual than upon any other. Enforced idleness with the confinement and isolation such as necessary prison discipline requires, is much more likely to break down a naturally weak or defective mental organization than is prison life with all its restrictions, but with rational physical occupation. Melancholia, which in some of its forms is the severest torture men can endure, is one of the commonest forms of insanity in prisons, as the number of insane suicides attests, and the humanity of condemning a convict, for whom the law in its wisdom contemplates a lighter penalty, to a self-inflicted death is certainly questionable. It would be really more merciful to inflict the death penalty without the preliminaries of mental torture and depression.

The spirit of a criticism which says in this connection: "These convicts, either by inherited or acquired traits, are enemies to a moral civilization, and why should we be especially obligated to fashion their mental lives with ours?" is not apparently in the highest sense humanitarian. Neither can it claim a very high moral standpoint. From a low moral and narrow and one-sided economic standpoint the abolition or restriction of prison labor may be justifiable; the JOURNAL did not say it was not; but it sees no reason for retracting its opinion that the conversion of penitentiaries into manufactories of cranks can be viewed in no way as either "advantageous or respectable."

THE JOURNAL THREATENED.

We have received the following letter from Dr. WILLIAM SMITH of Kirksville, Mo. The Doctor is one of the SMITHS whom fate vainly tried to conceal by naming him SMITH, and is bound to be heard from:

"To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Chicago, Ill. Sir, As I am forwarding to my attorneys, Messrs. Carroll, Turner and Kirwin of Grand Rapids, Mich., the issue of your JOURNAL for the 2d inst., I would be obliged by your sending to me in return for the enclosed ten cents another copy. I regret that you saw fit to publish so foolish an article on the mere statement of the *Medical Age* (July 26). It necessitates my bringing two libel suits instead of one, as, of course, I do not allow such statements, published in the most reckless manner without a tittle of proof in their support, to go without the strongest effort on my part to obtain redress. Please understand that I ask for no apology, wish none, I am content to accept such damages as the courts will allow me for the 'mendaciously bizarre' article which you saw fit to produce. I take the liberty of sending you corroboration of my statements regarding the mistake of Drs. WEBB and MILLER and the condition of the patient.

"I am, Sir, Yours truly, WILLIAM SMITH,
Licentiate of the Royal Colleges of Physicians and Surgeons of Edinburgh (Scotland) and of the Faculty of Physicians and Surgeons, Glasgow (Scotland), etc."

It seems that in our editorial of October 2 we referred to Dr. WM. SMITH as "(the aforesaid graduate of the non-existent Edinburgh college whose title resembles that of one of the 'schools' of BUCHANAN of diploma-mill fame) has recently contributed the following case illustrating 'osteopathic science.'" The truth is there is no teaching body under the name of the "Royal College of Physicians" but the "Royal College of Physicians" is an examining body, and as such confers licenses, and so far as the JOURNAL'S statement seems to be misleading, or unjust to the pious past of Dr. SMITH, we cheerfully correct it, as the error was unintentional.

There is a School of Medicine of the Royal Colleges, Edinburgh, which by a recent reorganization of the three medical corporate colleges in Scotland, namely, the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Faculty of Physicians and Surgeons of Glasgow, gives lectures and holds a series of examinations, after passing which the student is presented with the diplomas of all three colleges, but these separate colleges, as already stated, are not teaching bodies. Degrees in medicine are conferred by the University of Edinburgh, the University of Glasgow, the University of Aberdeen,

the University of St. Andrews. The Medical Departments of these Universities, St. Mungo's College, Glasgow, Anderson's College Medical School, Glasgow, and the University College, Dundee, are alone entitled to confer degrees in Scotland to men.

So far as the general statement that a patient with retention of the urine had a diagnosis made by somebody—of carcinoma of the stomach—and that the said patient was subsequently relieved by the passage of a catheter, is no particular argument in favor of osteopathy, because it is wholly irrelevant to the subject matter. We never denied it. We regard osteopathy as an unmitigated humbug and its practitioners as obtaining money under false pretenses. That is our opinion.

CORRESPONDENCE.

Pyrethrum.

KEY WEST, FLA., Sept. 20, 1897.

To the Editor:—Will some reader of the JOURNAL having the facilities, administer to dogs, etc., different doses of insect powder and report results? Through an accident to a child it was found to possess probably anthelmintic properties, and I would like to gain some idea of its dosage for *homo sapiens*, from trials on the lower animals. Insect powder consists of the flowers of Pyrethrum carneum and P. roseum, indigenous to the Caucasian Mountains, but now extensively cultivated in California. It is frequently adulterated and I would ask whoever undertakes this investigation to get a perfectly pure article. The fumes of the burning powder are not poisonous to man, though it causes some confusion of the head in those who sleep in closed rooms where it is used, and the writer has seen in the case of a man sleeping in an apartment completely closed and filled with the smoke considerable intoxication, numbness and severe itching in the upper and lower extremities, which persisted for several hours. In a patient who contracted the mange or acarus scabiei from a horse, dry insect powder applied to the skin afforded more relief and limited the spread of the insects better than a dozen other remedies previously employed.

In the dry state it destroys insects infecting man, beast, bedding, etc., and is used as a dressing for ulcers and wounds. According to the "U. S. D." the powder exhausted by alcohol is harmless to insects, its activity is therefore dependent on some principle whose nature has not positively been determined. Professor Riley, in a series of experiments, found the fumes of the burning powder very poisonous to insects and for certain purposes (mosquitoes, midges, sand flies, etc.) afforded a ready mode of application, but that generally a watery infusion was the best and cheapest preparation. Twenty-five grains stirred up in two quarts of water was sufficient to kill young cotton worms. The tincture (one part to four) has been especially recommended, diluted with ten times its bulk of water, by F. Jager to keep off vermin from the human body. According to Professor Maisch, it is capable of causing a vesicular eruption like that produced by poisoning. Pyrethrum is certainly a blessing in the tropics in combating the mosquito (sometimes written mosquita) a Spanish word signifying "little fly." G. R. PLUMMER, M.D.

Severe Epistaxis.

THURBER, TEXAS, Oct. 6, 1897.

To the Editor:—I wish to report in brief a severe case of epistaxis that occurred in my practice last week. I was called to see a young man aged 26, at 10 P.M., to stop a very severe nose-bleed from the right nostril. He has a large polypus in that nostril, which I judge to be the cause of the hemorrhage. With Dr. Chas. Binney, who was also called, I soon plugged the nose anteriorly and posteriorly with cotton, also insufflated tannic acid into the bleeding nostril and left, feeling satisfied that he would not be troubled any more that night. Dr. Binney sent for me at six in the morning and informed me that he had been with the patient nearly all night. He could stop the bleeding, but in a short time it would commence again by the blood flowing into the throat. During the day we used Monsel's solution, antipyrin, etc., but could not check the flow. At 3 o'clock in the afternoon, seventeen hours after the epistaxis commenced, our patient was pulseless and almost moribund. We decided at that time to try an oil on the cotton to prevent the oozing of blood through the cotton. We removed the plug, and supplied plugs posteriorly and anteriorly that had been previously saturated in liquid albolene and the hemorrhage stopped never to return. This idea at the time was entirely original with me. It may be known and practiced, but I am confident it is not generally known. I know of two deaths from epistaxis in which a specialist officiated and in neither was oil applied to the plugs. I have also examined eleven textbooks on the subject and find only one mentions the use of an oil in the treatment of epistaxis. In the "System of Surgery," by Dennis, I find, "a tampon of cotton, lint, or sponge, saturated with vaselin, should have previously been prepared, etc." He does not say for what the vaselin is used and one would imagine it was merely to lubricate the tampon to facilitate its introduction. I think it important to saturate the cotton with albolene, vaselin or any light oil to prevent the blood from oozing through the tampon.

I do not write this with the idea of presenting anything new, but merely to impress it on those members of the profession who do not know, that they may not be so unfortunate as to lose a patient from nosebleed. T. M. BAIRD, M.D.

Underground Zoology and Legal Medicine.

WASHINGTON, D. C., Sept. 28, 1897.

To the Editor:—Will you allow me to correct, in several important particulars, the rather mixed report on page 646 of the current issue of the JOURNAL of my paper on "Underground Zoology and Legal Medicine," read before the public medicine section of the British Medical Association on the 1st inst. The facts that "the subject is a new one and medico-legally interesting," if not important, warrant me, I feel, in seeking a correct statement of my observations.

1. I found the same species of mites, beetles and flies on cadavers buried for periods varying from two to ten and even twenty years. Thus showing that *under the conditions here observed*, these scavengers do not seek the buried cadaver in distinct "squads" nor at definite periods.

2. I found certain species of flies (other than the phoridæ) on cadavers buried in midwinter, as well as on those buried in midsummer. The conclusion, therefore, that the finding of dipterous remains on a cadaver is proof of burial during the summer months is not in all cases a safe one.

3. My studies made primarily to test for this locality, Megnin's application of entomology to legal medicine had little to do with the persistent vitality of pathogenic organisms. In one case of tetanus, however, the cadaver having been buried for ten years and seven months, a guinea pig inoculated with material from the coffin died, but *without* showing any symptoms of tetanus or any trace of the tetanus bacillus.

The main point to be noted is that the entomologic chronology of cadaveric history has not yet been clearly established; nor can it be without further extensive observations and comparison of results in different localities. This caution was well uttered by Johnston and Villeneuve in the *Montreal Medical Journal*, August, 1897.

MURRAY GALT MOTTER.

Suppressio Veri; Suggestio Falsi.

ST. LOUIS, MO., Oct. 9, 1897.

To the Editor:—In consideration of the above and the correspondence between Drs. Woodbridge and Upshur, I propose to give a brief sketch of my experience in typhoid fever in Missouri for over forty years.

In the fall of 1853 I had charge of a family of seventeen persons, in age ranging from 1 to 20 years (Dr. C's. family). Called in consultation Dr. McD., a graduate of a Philadelphia medical college. We diagnosed typhoid fever in case one. The patient was about 20 years of age, of sanguine temperament and good health up to that time. Treatment began with a purgative dose of calomel, hot turpentine stupes over the bowels (right iliac region), aromatic sulph. acid as a drink, and Dover's powder at night. The diarrhea was kept within reasonable bounds by the two latter, increasing or lessening the amount according to circumstances. After his bowels were moved from the first purgative, we gave from ½ to 2 grs. calomel every six hours. About the ninth day his tongue had cleaned and become moist. Tympanites and some pain subsided over bowels and he was convalescing rapidly, but contrary to orders he got up, dressed, and persisted in walking about his room. In the afternoon he was seized with a severe hemorrhage and within a period of about three hours died from perforation of the bowels (supposed). There is nothing out of the ordinary in this case. The unexpected termination, and the alarming condition of the remaining sixteen called for the most deliberate and philosophic consideration. All had diarrhea, some were in bed, others preparing to go, and all without exception presented unmistakable evidences of type with the case above.

I proposed calomel in small doses as a curative and prophylactic. It was opposed on the ground of its constitutional effects. I referred the other two doctors to the old axiom, "Abusus non tollit risum" and began by giving calomel ¼ to 2 grs. every four, six and eight hours, alternately with permanganate of pot. in similar doses. This treatment was given, with some variations, to the entire family of sixteen. All made good recoveries and in about three weeks were discharged.

In summing up the treatment which I have invariably practiced, I wish to emphasize calomel and permanganate potass. (or if preferred as a matter of choice, bichlorid hydr.) in minute doses as a preventive, abortive or curative. Of course the many adjuncts, such a turpentine, arom. sulph. acid, etc., should and ought to be considered in many cases. The constitutional effects of the first named agent should always be sought for as speedily as possible and held there until the patient is beyond all danger of relapse.

In all cases where the stools are particularly offensive (and all are) the permanganate potass. should be continued until the fetor, etc., are corrected and this change is evidence of the destruction of the germs, poison, in other words, typhoid bacillus. In diet: Liquid food, buttermilk, sweet milk, raw eggs beat up with spts. frumenti, soups, etc.

My success in typhoid fever has been so completely satisfactory that I am not disposed to change this described treatment of it for any other.

In this article I wish to place myself on record as endorsing the several articles in the JOURNAL favorable to blood-letting (notably Dr. Todd, San Francisco) in pneumonia, puerpural convulsions, certain conditions of the brain and stomach, etc.

J. M. FOREMAN, M.D.

Wants the Discussion Continued.

MILTON, DEL., Oct. 9, 1897.

To the Editor:—We have been watching the controversy which has been going on between Drs. Woodbridge and Upshur, yet it has not been interesting or edifying to your readers for we have been looking for them to say something to confirm the abortive treatment of typhoid fever or *vice versa*. While we have not been able to indorse all that Dr. Woodbridge claims, yet we have reason to believe that there is some good in it and the antiseptics which he uses. We have ever believed in antisepticising of the alimentary canal in every disease, and purging out the accumulation of the ages, following this with some antiseptic remedy. There can never any harm occur from this course, but many, many times great good. But let the doctors comment and criticise each other as they may about the abortive treatment of Dr. W., however good or bad it may be, it will have a tendeney to revolutionize the treatment of typhoid fever and that of all others. The agitation of this by Dr. W., if it does nothing else, will cause the subject to be ventilated as perhaps no other has been since my debut into the profession. And whatever subject is gotten up for discussion in any direction will be beneficial and bring out and develop the truth. We say go on Doctors, but let us have less of your spleen and more of the cause and treatment of typhoid fever.

JAMES A. HOPKINS, M.D.

Hospital Interneships.

CHICAGO, Sept. 30, 1897.

To the Editor:—I read with interest your editorial, "The Advantages of Hospital Interneship," in the last number of the JOURNAL.

My opinion is that all agree in acknowledging the benefit of hospital training. Why do more students not secure to themselves the advantages of such a training? Is it a want of appreciation on the part of the prospective physician? I think not.

The average student, yes, 95 per cent., are anxious to secure a place in some good hospital, in fact in any hospital. Place the blame where it belongs. The fact is that there are too few places of this kind to be filled. The case you cite illustrates my point very nicely. You say fourteen students came up for examination to fill twelve vacancies. Out of that fourteen twelve got hospital positions and two were disappointed. Had there been forty come up for the same examination twelve would have gotten places and twenty-eight would have been counted out. That is one reason why more do not make the effort. Another will be found in the fact that those who anticipate taking the examination for hospital interneship devote their last year to "bucking" for examination, as they call it, to the exclusion of hospital and dispensary clinical work. Instruction under the tuition of their teachers is ignored entirely. What then happens to the unfortunate candidate? He finds himself, on graduation day, decidedly short in clinical experience, with but little prospect of getting more before entering active practice, unless he should be so fortunate as to have more money than many of them possess.

This can be remedied to some extent by shortening the period of interneship. If the term was made twelve months instead of eighteen months, just one-half as many more would receive the benefit of a hospital training. There are always more candidates than there are places.

The physicians who control our hospitals are responsible for this and to them should an appeal be made for more internes and shorter service. Yours truly,

A SUBSCRIBER.

Death from Carbolic Acid.

WEAVERVILLE, N. C., Sept. 23, 1897.

To the Editor:—I report this case as I have not been able to find one in which death took place so soon after taking so small a quantity of carbolic acid.

Mrs. Miles, aged 28, mother of two children, youngest 5 years old, was in the third week of typhoid fever, about the sixteenth day with temperature ranging from 100 degrees in the morning

to 101.4 in the afternoon, when the nurse gave her one teaspoonful of carbolic acid (red) in one-fourth glass of water.

In three minutes she was unconscious, her lips and face livid, and muscles rigid.

The nurse gave mustard and warm water without effect, then she was given magnesia, lime-water, sweet oil and raw eggs. In fifteen minutes she was profoundly comatose and would have died of heart failure, but was given, hypodermically, morphin and strychnia, and death took place from the lungs. She was dead in less than forty minutes. W. L. REAGAN, M.D.

A Query on Serum Treatment.

JACKSON, TENN., Sept. 9, 1897.

To the Editor:—Since it appears that the serum of the blood taken from those who have typhoid fever will destroy the typhoid bacillus, is it not reasonable to suppose that serum taken from those who have just recovered from the disease and inserted into the blood or tissues of those who have it, may prove a remedy for the disease?

Or, for fear of contamination from the blood of those who had it, may not the typhoid bacillus be injected into the horse or cow and the serum taken from those animals and injected into the blood or tissues of typhoid patients prove to be an antitoxin to the disease? J. A. CROOK, M.D.

SOCIETY NEWS.

The American Academy of Railway Surgeons elected the following officers; President, Dr. R. Harvey Reed, Columbus, Ohio; first vice president, Dr. W. J. Mayo, Rochester, Minn.; second vice president, Dr. Arthur D. Bevan, Chicago; secretary, Dr. C. D. Bryant, Omaha. Place of meeting, Chicago, 1898.

The International Congress of Pharmacy, Brussels, August 14 to 19, recommended the institution of a superior council of legal chemistry; also that the usual denomination given to a chemic product cease to be a trade mark or private property after it has fallen into the public domain (referring to products with well-defined formulæ, antipyrin for example). An international committee was appointed to prepare a codex of methods of analyzing for the titration of drugs and Galenic preparations containing definite principles. Professor Remington of Philadelphia delivered an address on "Revision of the Pharmacopeia," with an appeal for concerted action on the part of physicians and druggists, the former agreeing not to prescribe secret formula remedies and the latter agreeing not to manufacture them. Denayer concluded his report on "Organ Extracts," by urging the importance of absolute sterility in the liquid form and absolute freedom from moisture in the powder, tablet, etc., form, kept preferably in dessicators *à la chaux* (lime). All the European countries, the United States and Mexico were well represented. The next congress will convene in Paris in 1900.

Newport (R. I.) Medical Society.—Newport, R. I., Sept. 11, 1897. Dear Doctor:—As chairman of a committee of the Newport Medical Society I am directed to call the attention of all Medical Societies and Journals to the following letter:

At a regular meeting of the Newport Medical Society, held Wednesday, May 19, 1897, the following resolutions were unanimously passed:

Resolved, That it is the opinion of this Society that Congress should change the existing laws regarding the employment of physicians on steamships and other vessels and, with a view to the attainment of that end, the Society deems it advisable that the words "other than ferry boats" be inserted between the words "vessels" and "carrying," which are on the eighth line on the forty-ninth page in Section 5, Chapter 6, Title forty-eight of the "Laws Governing the Steamboat Inspection Service, Revised Statutes of the United States as amended by various Acts of Congress, printed 1896." Also that the word "immigrant" on the ninth line of the same page be erased. Also that the words "or passengers or other than cabin passengers" on the ninth and tenth lines of the same page (forty-ninth) be erased and the words "lying between one inspector's district and another or going foreign" be inserted instead. Also that the word "fifty" be erased and the word "thirty-five" be substituted for it on the tenth line of the forty-ninth page. Also that on the twelfth line between the words "articles" and "and" should be inserted the words "and not required to do other duties that those usually required of a ship's surgeon on government vessels." Also that after the word "dollars" on the twenty-second line on the forty-ninth page should be inserted the words "for each trip or voyage."

Resolved, That the President and Secretary of the Newport Medical Society forward to the President (Dr. Nicholas Senn) of the AMERICAN MEDICAL ASSOCIATION a copy of these resolutions, and urge in their communication to him the expediency of urgent action on the part of the delegates to the AMERICAN MEDICAL ASSOCIATION, and also that each delegate shall use all influence with his individual Congressman to attain this very desirable result.

A copy of these resolutions was forwarded to the President of the AMERICAN MEDICAL ASSOCIATION, with two copies of the "Laws governing the steamboat inspection service," one for the President and one for the Secretary, Dr. W. B. Atkinson, both marked. Our delegate, Dr. Mary E. Baldwin, delivered the resolutions to the Secretary, who informs us that, owing to great pressure of business, they were not brought before the ASSOCIATION by him, expecting that our delegate would present them; and as our delegate expected that they would be presented by the Secretary they were, unfortunately, not presented at all.

At the regular meeting of the Society held the 21st of July, a committee of five was appointed to draw up a letter containing the above resolutions and also to give some data concerning this important matter and to forward them to all medical societies and journals. We can only say (what our Society has often said before) if this great event be brought about that it will give employment to hundreds of competent physicians, open new paths to the younger members of the profession and prove of great practical usefulness and benefit to the traveling public.

On the steamboats between Fall River, Mass., and New York City there are sometimes as many as a thousand passengers on the boat. Although the trip lasts, as a rule, only nine hours, still there are times when the boats are delayed for hours and it seems that it would be more in keeping with the humanity of the times to have a physician on the boat than to have the expense of canary birds and brass bands and that the money would be much better expended if such were the case. All the steamboats on the Sound, on the Great Lakes, on the long rivers where passengers are often for days without medical aid, practice the same economy. Our seagoing steamers running South, as a rule have no physician on board. Some employ the device of employing the purser as surgeon and when he is pressed, owing to his numerous duties, appoint at times a man who is not any more qualified than the purser to act as a surgeon's assistant. Such steamers as those running from Philadelphia to Portland carry often thirty or forty passengers and a crew of twenty or more and being often out three days should have a physician on board. A passenger on one of the lines running South was obliged to act for the company, as a man had a severe injury and could not be put ashore for three days. The passenger was, fortunately, a surgeon. Again, it is very common on all the steamboats to rely upon traveling physicians to care for sick seamen and passengers. They receive no compensation for their services and are not even returned their passage money. Such conduct is inexcusable besides being a great wrong to the public. Invalid physicians, traveling for their health, have been called up to attend to cases and have suffered greatly in consequence of being disturbed of their night's rest. Cases of childbirth on steamers are not infrequent, and the chairman of this committee had a case of childbirth and was up all night, and on another occasion passed a whole afternoon and night with a patient (one of the waiters) who was suffering from a nearly fatal attack of edema of the glottis. In neither case was any remuneration given nor was the passage money returned. Another member of this committee has often had to perform duties not only of a medical character, but those of a surgeon. The profession is injured in this way, and it is absurd as well as injurious to the profession to have pursers act as surgeons or surgeons perform duties of a clerkly character, and none of which belong to the duties of a ship's surgeon.

We, therefore, protest against the existence of this abuse any longer, and we call upon our medical brothers throughout the land to aid us in any and all ways to abolish this abuse, to

call upon their senators and representatives to aid them in so changing the laws that such abuses shall be abolished and that the long suffering traveling public and the crews of our vessels shall have at least as much protection as the whalemen have on British ships.

The chairman of this committee called attention to this fact in an article published in the *Newport Daily News*, in 1885. The importance of having a regularly educated physician on board in case of an epidemic of cholera, yellow fever or other plague is beyond dispute to any intelligent mind and should be looked upon as an absolute hygienic requirement.

Dr. V. Mott Francis,
Dr. H. R. Storer,
Dr. F. J. Davis,
Dr. C. W. Stewart,
Dr. Mary E. Baldwin. } *Committee.*

V. Mott Francis,
President of the Newport Medical Society.
Mary E. Baldwin, *Secretary.*
August 17, 1897.

Kindly send me a copy of any action that you may decide to take, in print or otherwise, in furtherance of the object indicated. Yours sincerely, V. M. F.

The Twenty-Third Annual Meeting of the Mississippi Valley Medical Association was held in Louisville, October 5 to 8 inclusive. The features of this meeting were excellent and timely papers, lively discussions, liberal entertainment and lovely weather, the whole being enhanced by the prevailing sentiment of Kentucky good fellowship and hospitality. The Association has never been so lavishly entertained as at Louisville, and this city has added another lustrous star to the constellation with which the local profession is already adorned. Many prominent and able men were present, among whom may be mentioned, Senn, Bishop, Goldspohn, Ochsner, Sanger Brown and Murphy of Chicago; Shoemaker and Price of Philadelphia; Morris and Foster of New York. The officers elected for the ensuing year were: John Young Brown, M.D., St. Louis, President; A. P. Buchman, M.D., Fort Wayne, Ind., First Vice-President; A. J. Ochsner, M.D., Chicago, Second Vice-President; Henry E. Tuley, M.D., Louisville, Secretary. A more extended report of the proceedings will appear in a later issue. The next meeting of the Association will be held on the second Tuesday in November, 1898, at Nashville. The most attractive feature of the Medical Exhibit Hall of the Mississippi Valley Medical Association is the Medical Press Bureau, conducted by Charles Wood Fassett, whose long connection with medical journalism and medical society meetings makes him capable of managing an enterprise of this kind. In this bureau were represented a number of the leading medical journals of the country, and a system of sampling and distribution has been inaugurated which is certainly most beneficial to those publishers who are fortunate enough to secure membership. Among the journals represented we notice the following: Journal of the American Medical Association, Chicago; *Annals of Gynecology and Pediatry*, Boston; *Mathews' Quarterly Journal of Rectal and Gastro-intestinal Diseases*, Louisville; *Medical Fortnightly*, St. Louis; *Medical Herald*, St. Joseph; *North Carolina Medical and Surgical Journal*, Wilmington; *Medical Review of Reviews*, New York; *Philadelphia Polyclinic*, Philadelphia; *Virginia Medical Semi-Monthly*, Richmond; *American Medical Journalist*, St. Joseph; *Journal of Eye, Ear and Throat Diseases*, Baltimore; *Daily Lancet*, New York City.

PUBLIC HEALTH.

The Lock step as a Possible Menace for the spread of contagion has been abolished in the Detroit House of Correction.

False Economy.—The town authorities of Maidstone, Kent, England, are held responsible for the typhoid fever outbreak, owing to their refusal to renew the appointment of a watchman for the water supply at an annual salary of $200.

Health in Michigan.—Reports for September show the five diseases causing most sickness in Michigan for the five weeks ending October 2, to be: rheumatism, diarrhea, neuralgia, bronchitis and influenza. Consumption appears tenth on the list.

Results of Sanitation.—According to the New York Health Board reports for the first eight months of the present year the death rate has been 20.2 to the thousand. This means, in round numbers, 14,200 fewer deaths this year than there were under conditions five years ago; a gain, therefore, of 14,200 in actual population. Naturally much self-complacency may be read between the lines.

Typhoid Fever from a Disused Well.—The *Medical News*, October 2, has an item stating that water drawn from an abandoned well has given rise to several cases of typhoid fever near Rye Beach, N. Y. A party consisting of half a dozen persons went into camp near that place and drank water from an old abandoned well. The whole party immediately became ill, and two of the members have since died.

Yellow Fever in the Havana Hospitals.—According to a report in *La Medicina Militar Española*, during May there were in the yellow fever hospitals of Havana, admitted 814; discharged 406; died 226. During June, admitted 677; died 170; remaining 331. In the general hospitals during May there were admitted 38,692; discharged 33,739; dead 523. During June there were admitted 9,931; discharged 8,798; died 270; remaining July 1 5,512. These are the statistics of the Spanish army of invasion.

Health in Chicago.—During September the total deaths in Chicago were 1,679 or 1.04 per 1,000, as compared to 1.02 per 1,000 for the same period in 1896. Of these, 464 were under 1 year of age, 219 between 1 and 5 years. The leading causes were: Diseases of nervous system, 203; consumption, 175; infantile diarrhea, 152; other acute intestinal diseases, 163; heart diseases, 92; cancer, 76; pneumonia, 67; diphtheria and membranous croup, 53; typhoid fever, 48; bronchitis, 37 (*vide* Journal, September 18, for August report).

Sanitary Inspection Company.—In 1883 a successful company was instituted in London under the name of the London and Surburban Sanitary Survey Association. Last summer a similar corporation was formed in New York, under the title of the Building and Sanitary Inspection Company. It is prepared to make sanitary inspections of buildings and premises, to issue sanitary certificates where the conditions warrant it, to take yearly supervision of buildings, to draw plans for and take charge of all sorts of sanitation work and to make structural examinations of all kinds of property, thus offering services which are of value to owners, occupants, mortgagees, prospective buyers, lessees and investors.

"Silver Wedding" Celebration of the Michigan State Board of Health.—The members of the legislature of Michigan have consented to have Dr. Baker celebrate the twenty-fifth anniversary of the establishment of the State Board of Health on July 30, 1898. They request the State Board to prepare comparative statements of the conditions affecting the public health, and of the actual conditions of health in Michigan before and since its establishment, exhibiting, if it be true, that there is a very marked improvement in the healthfulness of the State in recent years, and statements of the principal dangers to life and health at the present time, and a program for a public meeting for the discussion of measures for the further promotion of the public health in Michigan. They invite the National Conference of State Boards of Health to hold its next annual meeting in Michigan in the summer of 1898, and also invite the Surgeons-General of the Army, Navy, the Bureau of Animal Industry and the Boards of Health of all the principal cities to assist. The Railroad Commissioner and the State Board of Health are asked to act with the citizens to facilitate the

attendance of excursionists from other States; to place before the visitors the beauties of the summer resorts on the shores of the Great Lakes and to exhibit Michigan as a summer resort State. Sanitarians will take pleasure in doing their utmost to spread the light and lend a hand, because Michigan has done so much through its Board to show the value of such organizations, and through its honored Secretary has done so much to prove how much can be done by a wide-awake board backed up by a not illiberal legislature.

Disposal of Condemned Meat in London.—In the city of London during 1896 Dr. Saunders, the Medical Officer of Health, had to deal with 915 tons of meat which had been condemned as bad and which, had it not been seized, would have been sold. Contractors paid the commissioners of sewers £2,352 for the evil-smelling stuff. Dr. Saunders, in explaining what is done with it, said that first of all it is hacked and slashed about with knives to render its appearance unlike meat for market, and then it is thrown into a chemic bath to soak for some time. These baths were introduced by Dr. Saunders in 1874. The meat is treated with chlorid of calcium and soda and afterward with sulphate of iron, which renders it black, unsightly and nauseous. It is by this time a pulpy mass of decomposed tissue almost beyond recognition. It is now treated with picric acid, which turns it a bright yellow. At this point the city authorities have done with it and it is given over to the contractors, who remove it to some works at Bow, where in steam-jacketed pans it is boiled down for the fat, which is sold to candle- and soap-makers. The bones are collected and sorted, the smaller and worthless ones are reduced to powder which is sold for phosphates. The residual liquor, which is a thick yellowish-brown fluid, is used as a fertilizer.

Public Health Work in Vermont.—The *Burlington Free Press* quotes from an article by Dr. Ashbel P. Grinnell, in "The New England States," published by Hurd of Boston, the conclusions as to the status of preventive medicine in Vermont. It says: Dr. Grinnell in his discriminating record finds the Green Mountain State deficient in laws relating to the public health, but is hopeful that the State Board of Health with the aid of the local boards and the registration law of 1896, placing the vital statistics of the State in the hands of the State Board and requiring reports of births and deaths from physicians and the safeguards against the disposition of dead bodies, will in no long time remedy the deficiencies. "The Board," he says, "aims to keep the laws of the State in harmony with the recent important discoveries in preventive medicine, to secure their observance by intimate co-operation with local boards throughout the State and relies on the medical profession to give it at all times its hearty support." We are deeply interested in the work of Drs. Grinnell and Lewis and doubt not it will add real value to the great work for which it is prepared. We esteem the doctors of Vermont, with whom we have had long and large acquaintance, not only for their learning and skill in administering medicine, but more for their sympathy and success in mitigating pain and encouraging endurance to overcome distress. They are diligent by day and by night, in sunshine and storm, to overcome the calamities and weaknesses that fall upon their brethren. It is the spirit that is in them, as well as and more than the doses they dole out, that give confidence and lengthened life to the community.

Street Sprinkling with Disinfectants.—For some time the municipal authorities of the city of Brussels have endeavored to find a system for watering the public streets with a disinfectant. Mr. Van Hersten, the director of the Brussels slaughter house, has for the past four years used an apparatus of his invention for cleaning out the piggeries, stables, market and courts of said establishment. On February 23 an experiment made with said apparatus for street sprinkling proved so successful that the city of Brussels is disposed to definitely adopt the system. The apparatus, which is very simple, is composed of a cylindric reservoir which is filled with an antiseptic substance, creolin preferred. A pump system is applied to the reservoir, which produces when the city water is introduced into the apparatus an aspiration more or less strong, which is regulated at will. The antiseptic matter mixes with the city water and thus changed acts as an efficacious disinfectant. This apparatus was especially useful a few years ago during the aphthous stomatitis epidemic in Belgium. While a few sporadic cases are reported in this country, an epidemic of the disease now exists in the neighboring kingdom of Holland. During the month of January, 1897, the aphthous stomatitis was reported in 380 cattle stables in Holland, distributed over 110 communes. The number of cattle infected was over eleven thousand. In one locality in the province of Drenthe, sixty-two stables, numbering nearly three thousand animals, were contaminated, and the epidemic up to this writing is still prevailing. Although the disease, aphthous stomatitis, is reported as decreasing, it has appeared during the past fifteen days in seventy-nine cattle stables, principally in the provinces of Brabrant and Hainaut, and also among the cattle in the provinces of Liége and East Flanders.—"Consular Reports," June.

Yellow Fever.—Since our last week's record, which closed October 5, yellow fever has slowly but surely been gaining ground. The record is as follows: October 6.—New Orleans 5 deaths, 46 new cases, 2 of the latter being in Algiers, making the total number of cases in Algiers 7; Mobile 4 new cases, Edwards 16 new cases. Nitta Youma 1 new case. October 7.—New Orleans 37 new cases, 2 deaths; Clinton, Miss., 1 new case, Biloxi 10 new cases, Edwards 10 new cases, Mobile 4 new cases, Henderson's Point, Miss., 3 cases. October 8.—New Orleans 47 new cases, 5 deaths; Mobile 6 new cases, Edwards 13 new cases, 4 deaths. On this date a "suspicious" case at Aleo, Ala., was declared genuine yellow fever. October 9.—New Orleans 6 deaths, 35 new cases; Biloxi 15 new cases, Edwards 17 new cases, 1 death; Mobile 3 deaths, 6 new cases. On this date 2 cases were reported at Magazine Point. October 10.—New Orleans 5 deaths, 37 new cases; Mobile 7 new cases, 4 deaths; Edwards 9 new cases, 1 death. On this date Dr. Guiteras declared 4 of the "suspicious" cases at Galveston genuine yellow fever. October 11.—New Orleans 39 new cases, 4 deaths, bringing the total cases in that city to 616, with 65 deaths and 257 total recoveries. Mobile 5 new cases with no deaths, bringing the total cases in that city to 126, with 20 deaths and 67 total recoveries. On this date Bluefields, Nicaragua, announced a nine-day quarantine against Mobile. At Galveston 2 more "suspicious" cases were reported. Many physicians, however, refuse to believe that yellow fever exists in Galveston, although Dr. Guiteras' diagnosis has been confirmed by Drs. Randall and West. As we go to press dispatches of the 12th announce 34 new cases at New Orleans, with 2 deaths; 3 new cases at Mobile. Galveston reports the eleven cases there as convalescing.

Decline of Mortality in Prussia.—Dr. W. Kruse, in *Zeitschrift für Hygiene und In. Krankh.*, has shown for Northern Germany the remarkable decline in the mortality from enteric fever and diarrhea, from smallpox and in the deaths after surgical operations in hospitals (doubtless influenced by antiseptic methods and by new and sanitary buildings), which has been observed in Prussia, and in Germany generally, since the sanitary awakening of twenty years ago. In the successive quinquennia, from 1875 to 1894, the death rates per 10,000 living from enteric fever were 6.17, 4.99, 2.78 and 1.86, and those from diarrhea, 1.63, 1.59, 0.45 and 0.3. Scarlatinal mortality has also declined, the mean mortality from 1875 to 1886 having been between 5 and 6, and from 1887 to 1894 2 and 3 per 10,000. In the periods 1877–79 and 1889–91, the percentage of deaths after operations on bones and joints were respectively 4.4 and

2.7 and for strangulated hernia 21 and 15. The percentage mortality from erysipelas has decreased from 18 to 11.7, and that from consumption from 52 to 36 per 10,000. The death rate from smallpox is full of instruction, showing a very moderate rate during the long period of single vaccination with only a small amount of infection, a period of excessive mortality when a severe infection was introduced by the French prisoners of war into a population only partially protected, and with the primary vaccination generally deferred to the second year, often, indeed, till school age; and lastly, the period of compulsory vaccination and revaccination, the former still, fortunately, not being required till the second year of life, the latter enforced in the fourteenth, there being no means of evading this or the further revaccination of all men passing through the army. The cholera rates are also highly ineteresting. With the exception of the one great outburst at Hamburg, Germany, though from her central position in Europe and her proximity to Russia, for more exposed than this country, has for the same period escaped almost entirely the epidemics that raged in France, Holland and Italy, as well as in Russia and on the Danube.

Death Rates in Brooklyn Reduced by the Use of Pasteurized Milk.—Dr. George E. West, Secretary of the Department of Health of Brooklyn, at the request of the Hon. Nathan Straus of New York City has, under date of September 20, prepared a statement as to the lowered mortality in thirty-eight weeks in children under two years of age in recent years. Dr. West says: "In reply to your request for statistics demonstrating the utility of Pasteurized milk for the purpose of diminishing deaths from diarrheal diseases, I take pleasure in supplying you with the following table, which, it seems to me, is quite eloquent:

Year.	Population.	Deaths.	Rate per 100,000.
1890	854,000	1,331	156
1891	890,000	1,320	148
1892	928,000	1,512	163
1893	973,000	1,492	153
1894	1,045,000	1,382	132
1895	1,100,000	1,507	137
1896	1,125,000	1,338	119
1897	1,160,000	1,170	101

"As the use of Pasteurized milk is confined principally to infants under two years of age, I have used the number of deaths from diarrheal diseases of those infants as a basis of comparison. Further, as only thirty-eight weeks of the present year have expired, I have confined myself for purpose of comparison to the first thirty-eight weeks of each of the other years, which period practically covers the season during which diarrheal diseases occur in large numbers. The last column of my table is obtained by dividing the number of deaths from diarrheal diseases of children under 2 years, as shown in the third column, by the estimated population of the city for the corresponding year, which I consider the fairest basis of comparison possible. The experiment of using Pasteurized milk was begun in this city about the middle of the summer of 1896, and was followed up during the present summer more vigorously and commenced at an earlier date." The New York City Board of Health has, it is said, been antagonistic to Mr. Straus' work, and have endeavored to refer the improved death-rate in New York City to the system of cleaning streets that is peculiar to that city, namely, the "white wings" system. Now this system has not been operated in Brooklyn, so that the explanation that may be desired to be made to that Board does not hold good on the opposite side of the East River.

BOOK NOTICES.

Transactions of the American Climatological Association for the year 1897. Vol. XIII. Cloth, 250 pages. Philadelphia: 1897.

The book is well bound, printed on good paper and shows excellent workmanship throughout. Besides lists of officers and members, and minutes there are twenty-two papers, a series invalua ble to the physician or student of the climatic conditions and their relation to the various diseases known to the practitioner. The discussion follows many of the papers.

Proceedings of the Nineteenth Annual Meeting of the Missouri Pharmaceutical Association, held at Meramec Highlands, June 8-12, 1897. Paper. 128 pages. St. Louis: Nixon-Jones Printing Co. 1897.

Among reports, etc., the following papers of interest to physicians are noted: "Acids"; "Benzoinated Lard"; "Calcium Hypophosphate"; "Pharmaceutic Chips"; "Glycerin"; "A Pleasant Laxative"; "Metric System in Prescriptions"; "Powdered Opium"; "Quinin Sulphate," and "A So-called Tasteless Quinin," the latter being an exposé of Flora-China, by G. H. Chas. Klie, Ph.G., M.D.

Transactions of the Rhode Island Medical Society, Vol. v, Part III, 1896. Paper. Providence: 1897.

This volume contains the proceedings of the annual meeting, obituary notices, lists of Fellows, etc., and the following papers: "Anesthesia"; "Compulsory Vaccination"; "Report of a Case of Tubercular Peritonitis"; "Case of Retention of Urine from Enlarged Prostate"; "Only Nervousness"; "Posture in Disease"; "Two Cases of Gastric Ulcer"; "Remarks on a Case of Syphiloderma Gummatosum"; "A Case of Myxedema"; "Remarks on Myxedema."

The Ophthalmoscope. A Manual for Students. By GUSTAVUS HARTRIDGE, F.R.C.S. Third Edition. Philadelphia: Blakiston, Son & Co. 1897.

This little book of 150 small octavo pages is equally useful to the student as well as to instructors of ophthalmology; to the former, because the subject is presented in so simple language and rendered so clear by numerous illustrations that the student can easily understand it. And to the instructor it may serve as a good example of teaching ophthalmology successfully to medical students.

Missouri Botanical Garden; Eighth Annual Report. St. Louis, Mo.: Published by the Board of Trustees. 1897.

This volume contains scientific papers on the mosses of the Azores by J. Cardot; on some mosses collected in Madeira by William Trelease in June, 1896. Botanic observations on the Azores by William Trelease. The volume also contains a list of books and papers published by the Garden or its employes for the last seven years and the report of the officers of the board. The report of Director Trelease is extremely interesting and the illustrations are excellent. All botanists and persons engaged in the study of botany will be interested in the volume.

Transactions of the State Medical Society of Wisconsin for the year 1897. Vol. XXXI. Cloth, pp. 667. Madison: 1897.

The report includes the Constitution and By Laws, lists of members, officers and committees, proceedings of the fifty-first annual meeting, reports of the various officers and an obituary list. The papers are arranged according to their section, there being ten treating of surgical topics, eight on laryngology and rhinology, twelve on practice of medicine, seven on gynecology, eight on obstetrics, six on state medicine and hygiene, seven on materia medica and therapeutics and three each on ophthalmology, otology and pediatrics. The work is on good paper and in clear type, a valuable addition to literature of this field.

The Normal and Pathological Circulation in the Central Nervous System. Original studies by WILLIAM BROWNING, PH.B., M.D. Pages 171, with two plates. Price $1.50 Philadelphia: J. B. Lippincott Company. 1897.

This work consists of certain special articles on the intercranial circulation. It is not intended as a comprehensive treatise on the subject, but it covers considerable original work. There is much to commend in the book, especially the original experimentation of the pathologists, and the work is a rebuke to howling antivivisectionists for the practical experiments made on dogs and monkeys. Most of the chapters in the work con-

sist of papers read by the author before various societies, extended in some cases and in all revised.

It is a work of interest to all physiologists and pathologists, and practitioners desiring to increase their knowledge on anatomy and physiology of the central circulatory system.

Convergent Strabismus and Its Treatment. An Essay by EDWIN HOLTHOUSE, M.A., F.R.C.S., Surgeon to the Western Ophthalmic Hospital. London: J. and A. Churchill. 1897.

This essay is the result of a careful study of 144 cases of convergent strabismus. As the majority of these cases were under observation during a period varying from nineteen months to four years, the author was in the position of collecting very precise information of the ultimate results of his treatment, and of summing up his experience in certain general principles which should be followed in dealing with convergent strabismus.

He strongly insists upon the early use of correcting glasses and most emphatically warns against early operations. "At the outset," he says, "we hold it to be a matter of primary importance that in every case in which their regular use can be depended on, fully correcting lenses should be prescribed as soon as possible after squint has made its appearance." During the first three years the prescription of spectacles is, for obvious reasons, out of question; if the squint is slight and stationary, it is better not to interfere at all until spectacles can be worn, but when the squint is progressive atropin should be used to check its progress. Anything in the way of operations, however, he regards as positively inadmissible in children of this tender age. "Whoever has seen the disastrous results which may follow a tenotomy performed at this early age can have no hesitation in pronouncing any such procedure unjustifiable." The spectacle treatment brought about a permanent reduction of the convergence in more than 60 per cent., diminished the squint as long as the glasses were used in about 30 per cent., and only in 8 per cent. no improvement whatever was noted. When glasses have accomplished all they can do or when they have no effect upon the convergence, operative procedures are in order. These are then discussed in details which are very interesting to the ophthalmic surgeons, to whom this book can not be too highly recommended for its wealth of valuable information.

The Origin of Disease, especially of disease resulting from intrinsic as opposed to extrinsic causes. With chapters on Diagnosis, Prognosis and Treatment. By ARTHUR V. MEIGS, M.D., Physician of the Pennsylvania Hospital. With One Hundred and Thirty-seven Original Illustrations. Philadelphia: J. B. Lippincott Company; London: 6 Henrietta St., Covent Garden, 1897.

The author as he says, impressed by the separation of clinical medicine from pathology has endeavored to bring them nearer together. It is a pleasure to examine a book made up as this is of the result of original work. The illustrations, which are numerous and well executed, are drawings from actual specimens to the author's work in the pathologic department in the Pennsylvania Hospital and have never before been published. There is certainly no book published in this country that will compare with this for precision or accuracy and wealth of illustrations. There is no padding in the book, no attempt at fine writing, but plain, straight-forward statements of the conditions found in the specimens examined. The author makes a plea for the systematic examinations of postmortem cases that die in the hospital, and we fully concur in the author's conviction "that many diseases usually considered as confined to one organ are seldom so confined, for at the postmortem it has been found that there are lesions of other organs as definite as those of the part considered to be the seat of origin. At the same time many of the lesions are of such nature as to render it certain that they existed before the onset of the fatal attack." The author considers that practically all diseases may be divided into two general classes, those of extrinsic and of intrinsic origin. The work is creditable alike to the author and the publisher.

NECROLOGY.

LUKE ROBINSON, M.D., suddenly of heart disease, on a Southern Pacific train near Lathrop, in the San Joaquin Valley, October 10. He was a member of the Royal College of Physicians and Surgeons, and an ex-president of the State Medical Society of California, besides being connected with the State University and other public institutions.

JOHN K. ESHLEMAN, M.D., Jefferson, 1835, died in his 88th year in Lancaster, Pa., October 7. He was well known as a contributor to the magazines and newspapers on horticultural subjects.

PETER Y. FRYE, M.D., Dartmouth, 1846, born in Candia, N. H., died at his home in Oyster Bay, L. I., New York, October 9, aged 80 years. He was at one time president of the Queens County Medical Society and also officially connected with the Oyster Bay Bank.

JAMES J. MOORE, M.D., Syracuse, N. Y., October 3. Dr. Moore was born Oct. 21, 1861, at Stittsville. He received his early education in the West Winfield academy, from which he was graduated in 1875. He entered the medical department of the University of New York and was graduated in 1882. In politics Dr. Moore was a Republican and took considerable interest in municipal affairs. He served four years as school commissioner, representing the Sixth and Eighteenth wards, 1892-5 inclusive. He was a charter member of the Academy of Medicine and a prominent member of the Onondaga County society.

DR. WELCKER, who was for a great number of years professor of anatomy in the University of Halle, died in August at Winterstein. He was born in 1822 in Giessen, and studied in that university and in Bonn, taking his degree in 1851. It was not long before he began to give evidence of his ability by writing important papers on physical and physiologic subjects, many of which were connected with optics. Subsequently he made some valuable researches on the blood, the anatomy of the ventricles of the brain, and the development of the skeleton. He did not entirely confine himself to medical science, for he found time to publish a work on German poetic dialects. His first chair was in Giessen, where he taught anatomy both as *privat docent* and then as professor. In 1859 he accepted an invitation to teach anatomy in Halle, from which chair he only retired in 1894. In 1876 he was appointed to succeed Professor Volckmann as director of the Halle Anatomical Institute.——Dr. R. Berlin, professor of ophthalmology in the University of Rostock.——Dr. Surmay, corresponding member of the Paris Academy of Medicine.—*Lancet*, September 25.

JOSEPH M. LOVELL, M.D., the first medical martyr to the yellow fever in New Orleans, September 22. He attended one of the earliest cases and was stricken soon after. He was chief of clinic to one of the Polyclinic professors.

JOHN H. BEMISS, M.D., died September 2, aged 41 years and not of yellow fever (*Vide* JOURNAL September 25, p. 660); our data were taken from the press dispatches which seemed to be verified by their number.

SCOTT HELM, M.D., Phœnix, Ari., October 8, aged 35 years. He was graduated from Rush Medical College in 1883, eventually locating in Phœnix, where he was Surgeon-General of the Territory for seven years. Dr. Helm died from injuries received by being thrown from his horse.

IRA L. MOORE, M.D., Jefferson, 1851, died at the Parker House, Boston, October 2, aged 73 years. He was born in Candia, N. H., and was graduated from Amherst College at the head of a class of 227, carrying off the honors in all branches of study. After his graduation he formed a copartnership in Lowell, Mass., with Dr. Graves, a former instructor. In 1856 he was elected to the State Legislature from Lowell. In 1858 he ran for the State Senate against General B. F. Butler, and was

defeated by a small majority. In 1860 he went to Boston, and in 1861 was elected to the School Committee for three years. He was elected to the legislature, where he served in the years 1865, 1866, 1870 and 1871. To Dr. Moore was given the credit of having the Back Bay district of Boston changed from a tide marsh to a beautiful residence district, which has added $100 000,000 to the assessed valuation of the city.

EDWARD GRETHER, M.D., of Brooklyn, September 22, aged 57 years. He was a native of Germany and a graduate from the University of Würzburg in 1869. Soon after graduating he emigrated to this country and about twenty years ago took up his permanent residence in Brooklyn. He was a practitioner greatly respected among his fellow-countymen living in his section of that city. His death was due to myocarditis complicated with hydrothorax.

HENRY E. BRANIN, M.D., Jefferson, Philadelphia, 1858, died suddenly from paralysis October 6, at the Camden County Insane Asylum, Blackwood, N. J. With this institution he was connected for about twenty years. Until their separation five years ago the almshouse and asylum were one. He remained with the asylum.

SAMUEL MCNUTT ROSS, M.D., Jefferson, 1850, died September 13 at Altoona, Pa., where he had been a practitioner since 1875. He was a member of the AMERICAN MEDICAL ASSOCIATION, State and Blair County (Pa.) Medical Societies, once a Censor of the Western Reserve University Medical Department, Cleveland, Ohio, and also a consulting physician of the Altoona Hospital. His death at the age of 73 years was in consequence of injuries from being knocked down by a wagon.

ROBERT R. BALL, M.D., Assistant Surgeon U. S. A., commissioned November, 1896, died in Washington, D. C., October 4, after a week's illness. He was recently stationed at Fort Adams, Newport, R. I.

CHARLES T. ROY, M.D., according to a London dispatch of October 5, is dead. He was born in 1854, was a surgeon in the Turkish army during the Servian War, professor, superintendent of the Brown Institution, professor of pathology at the University of Cambridge since 1884, and a contributor to several medical journals.

T. F. FULTON, M.D., Beatrice, Neb., at Union City, Pa., September 29, aged 74 years.——J. W. Norris, M.D., Palmyra, Mo., October 4.——E. v. Hofmann, aged 60 years; Professor Legal Medicine, Vienna; Director Medico-Legal Institute, etc.——J. T. de Sousa Martens, Professor General Pathology, Lisbon.——Joseph J. Sweet, Jr., M.D., Albany, N. Y., 1894, died in the City Hospital, Albany, October 3, aged 29 years.

MISCELLANY.

Change in Name.—Dr. H. Davison Scharschild of New York, by virtue of granted permission of the supreme court has taken the name Dr. H. Davison Saril.

Needle in Epiplocele.—Tuffier confirmed his diagnosis with a radiograph, which showed the large needle distinctly.—*Presse Méd.*, August 12.

Journal du XII Congres International de Medecine.—These daily bulletins, Nos. 2 to 8, have been received through the courtesy of Dr. B. F. Whitmore, with the firm of Parke, Davis & Co.

American Medical Books in England.—The only medical lexicon that receives mention in the students' number of the London *Lancet*, August 21, is Dr. G. M. Gould's large work. Among other American books that are recommended to the English student of medicine are the works of Pepper, H. C. Wood, Osler and Da Costa; also those of Senn, W. W. Keen and Lusk. Of the late Dr. Lusk's book on midwifery the *Lancet* says that it is without doubt in many ways the best text-book in the English language on the subject.

Ninety Centigrams of Calomel in Six Days were taken by mistake, by a patient being treated for malignant syphilis in Turin. The general reaction was what might be expected from such an amount, but after recovery from this the syphilis had disappeared and there have not been the slightest manifestations of it since.—*Gaz. d. Osp. e. d. Clin.*, August 15.

Roentgen Ray in the Study of Anatomy.—Diakonoff usually injects the vessels with mercury, but as this is heavy and tends to alter the shape, he has found the following mixture preferable for certain cases: Plaster of Paris, cinnabar and minium āā 20 parts; flour 10 parts; water to make a liquid paste.—*Presse Med.*, August 12.

The Library of Sir Morell Mackenzie has been advertised for sale in a London auction room. Besides a large number of general works there are many recognized authorities on his specialties. Among his own contributions to medical literature there were many copies of his "Growths in the Larynx" and "The Laryngoscope," both published in 1871, also of "Leprosy of the Air Passages."

International Congress for the Study of Tuberculosis will be held at Paris next July, with Nocard, president, and G. Masson, treasurer, 120 Boulevard St. Germain. *Themata* announced: 1. "Sanitaria in the prevention and treatment of tuberculosis." 2. "Serum and antitoxin treatment of tuberculosis." 3. "Value of the Roentgen ray in recognition and treatment of tuberculosis." 4. "Prophylaxis of tuberculosis in animals." Membership fee, 20 francs.

Rule Made That Medical Schools Must Teach in English.—The quarterly meeting of the State Board of Health was held at the Great Northern Hotel, Chicago, October 5. A resolution was adopted that after May, 1901, no school of medicine or midwifery would be recognized unless its instruction was given in the English language. A number of schools of midwifery in Chicago will be affected. After May 1, 1898, no candidate for license to practice medicine in the State will be examined unless he gives documentary evidence of a preliminary or basis education equivalent to that of a high school course.

Two-fold Effect of Alcohol on the Muscles.—H. Frey's communication on this subject is based on numerous and comprehensive experiments and tests, principally with Mosso's ergograph. He found that alcohol stimulated fatigued muscles to an increased amount of work, but produced the opposite effect on non-fatigued muscles. It also deadens the sensation of fatigue. He explains its two-fold action as: 1, a paralyzing action (central) deadening the sensation of fatigue, and (peripheral) diminishing the work accomplished by the muscles; 2, a nutritive effect, supplying new fuel to fatigued muscles.—*Deutsche Med. Woch.*, August 19.

Extensive Drainage.—The extent to which Ewald carries drainage in all kinds of hydrops and accumulations of fluid with edema, is shown by a recent case he describes in the *Berl. Klin. Woch.*, No. 25. A man 33 years old presented uremic manifestations and ascites in connection with inflammation of the kidneys. He was helped along past the critical period by punctures whenever the fluid accumulated enough to annoy him, the case terminating in recovery after 164 liters of fluid had been withdrawn in the course of six months. The pleural cavity was punctured five times, the abdomen forty-five times and the legs on one or both sides as required.

Radical Cure of Inguinal Hernia.—Nélaton has been practicing a method of radical cure with orchidopexy, which he describes in the *Presse Méd.* of July 31, recommending it for all cases in which the tissues are thin and weak, with consequent difficulty in securing solidity with the usual Bassini operation. The innovation is the cutting out of a round disc the size of a centime in the body of the pubis, 8 millimeters below the edge, with Collins' punch forceps. The thin strip of bone left above

it is then sawed through and raised on its hinge of periosteum, to allow the cord to be placed in the hole left by the removal of the disc. The bridge of bone is then replaced and sutured, and the abdominal wall restored in two layers. He concludes by expressing his conviction that time will confirm the effectiveness of this transpubian passage of the cord, which retains its mobility; the testicles also cease to rise up in ectopic cases, while the course traveled by the cord is shortened at least a centimeter.

Blasucci's Hypogastric Syphon for drainage of the bladder after epicystotomy has been used for some time in the Galozzi clinic with brilliant results; the wound entirely healed in twelve days. It prevents the passage of any urine through the abdomino cystic wound, and can also be used for lavages when desired. It consists of a rubber tube in two branches, connected by a T-shaped glass tube. The short branch has four large holes at the farther end, with a bulb, blown up through a smaller tube adherent to the principal tube but not communicating with it. The long branch reaches below the bed, the end terminating in a glass ampulla, with a hole in the side, hanging in an antiseptic solution.—*Gaz. degli Osp. e delle Clin.* August 15.

A Juvenile Mistake.—One of our readers sends us the following: A bright little eight-year old boy was sent to the family physician's house one evening, he being a near neighbor, to have diagnosed several eruptive areas of "vesicles clustered on erythematous bases arranged in the course of the terminal twigs of the intercostal nerves and forming a semigirdle round the trunk" (Fox); he was informed that he had "shingles" and that he was to tell this to his parents. When he arrived home his mother asked him: "What did the doctor say was the matter with you?" When the little fellow promptly replied: "The doctor said I had the *slats*."

Dr. Bates is Surgeon-General.—Newton L. Bates, M.D., has been appointed by the President as Surgeon-General of the Navy and Chief of the bureau of medicine and surgery of the Navy. He succeeds Surgeon-General J. Rufus Tryon. Dr. Bates is a native of New York and now in his 59th year. He entered the Navy as an assistant surgeon in July, 1861, and saw considerable active service on blockading squadrons during the War for the Union. He reached the rank of surgeon in September, 1865, that of medical inspector in January, 1881, and medical director in September, 1888. After the war Dr. Bates saw service on every quarter of the globe, his last cruise having been on the flagship Pensacola in 1888. Since then he has been on duty successively at the Mare Island (Cal.) Naval Hospital as a member of the Medical Examining Board, and at the Naval Museum of Hygiene in Chicago, to which last position he was assigned in May, 1895.

An Application of the Neuron Theory to the electric treatment of hemiplegia was communicated by V. Seletzki recently to the Kiew Medical Association, with which he has been very successful. It is based on the idea that in cerebral lesions, when the focus heals, the compressed portion of the pyramidal tracts will resume their normal condition and functions if the neurons have been kept from atrophy and the muscles from losing their habit of functional activity from lack of use in the mean while. He attains this by electric treatment, which exercises the neurons (galvanization) and the muscles (faradization). He first galvanizes the head by placing the cathode on the hemisphere involved in the lesion, with the anode at the back of the neck. Then the hand is placed in salted water with the anode; the cathode at the back of the neck, after which the foot is galvanized in the same manner. The currents must be very weak and of brief duration. Muscular contractions are induced at the same time with an interrupter applied to the muscle, while the patient assists, by raising the hand, for example, when the deltoid is being treated. With this treatment he has restored motion to groups of muscles that had been paralyzed from seven to fourteen months, which ordinary electrization could never have accomplished. In one case of eruptive trophoneurosis of five years' standing, in which the pruritus rendered sleep often impossible, improvement was observed after the first séance, also in three cases of polyneuritis.—*Presse Méd.*, July 24.

Personal.—Dr. John S. Billings, now of New York City, is engrossed with the congenial work of cataloguing the literary treasures of the public library, the consolidated successor of the Astor, Lenox and Tilden collections. He has improved if not perfected the card system. When his new system of classification is finished it is his intention, as the responsible librarian, to have a shelf-list made by which the books may be checked off from time to time. In making up the groups already practically complete, some of the books mentioned in the earlier catalogues have not been found. Dr. Billings does not say that they have been stolen, but thinks it possible that they have been mislaid or shoved back out of sight. With such a list it will be easy to determine whether or not any books have disappeared.——Dr. Newborn, U. S. M.-H.S., who for the last seven years has been detailed as medical examiner of immigrants at the port of New York, has resigned with the intention of studying in Europe.

The "Dover Cliff" Case of Prolonged Unconsciousness.—Considerable attention has been given in England to a peculiar case, known as the "Dover Cliff Mystery." On August 5 a young girl aged 17 years was found unconscious and bruised, on the beach near St. Margaret's at the foot of a cliff 200 feet high, and was removed to the Dover Hospital. The character of her injuries (a severe bruise on the right side of the forehead and slighter contusions on the occiput and left ankle) makes it seem most improbable that she had fallen over the cliff, as was at first supposed, and it has been suggested that she was sunstruck while walking on the beach and received the bruises in falling to the ground. The possibility of the case being one of typhoid fever arises when it is remembered that long periods of unconsciousness, lasting more than four weeks, have been known to occur in this disease. The temperature curve, also, is not unlike that of typhoid. The principal treatment has been the use of the cold pack whenever the temperature rose above 102 F. Bromid of ammonium and iodid of potassium were given internally, with a diet consisting of milk and beef tea. The systematic use of the ice-pack and close attention to nutrition has kept the girl alive, but her unconsciousness persists.—*Medical News*, October 2.

Acute Ascending Paralysis as a Complication of Pasteur's Treatment; Recovery.—Rendu reports a case in which acute ascending paralysis supervened on Pasteur's treatment. The patient pricked his finger while assisting at a necropsy on a man who had died of hydrophobia. As a prophylactic measure he was treated at the Pasteur Institute and received sixteen injections between March 22 and April 1. On the latter date he felt cold and the following day was ill, with a feeling of heaviness in the legs so that he could hardly walk. There was also some pain in the loins like lumbago. The temperature was only slightly raised and there was some general hyperesthesia. On April 3 there was marked paresis of the lower limbs, with muscular pains and almost complete anesthesia of abdomen, lumbar region and lower limbs; there was also paralysis of the bladder. On April 4 paraplegia was almost absolute and involuntary defecation occurred about this time. There was no difficulty in respiration or in swallowing. On April 6 some weakness of the upper limbs came on and the heart became rapid. During this time the injections had been continued, as it was considered important to complete the immunization. On April 7 improvement began; the arms were no longer weak, and there was some return of power and sensation in the legs. Progress was rapid

and within three weeks the patient was quite convalescent. That the case was one of paralytic rabies seems unlikely, as the incubation was too short and the clinical course unlike it. It seems more likely that an acute ascending myelitis was caused by some toxin in the emulsion of spinal cord which was injected, and that though usually harmless, the toxin proved virulent in this case owing to the receptive soil produced by the unhealthy surroundings to which a postmortem room attendant is continually exposed.—*British Medical Journal.*

Hypnotism Before the Court.—A witness was called on behalf of the defendant in the murder case of People v. Ebanks, and an offer was made to prove by him that he was an expert hypnotist, that he had hypnotized the defendant and that when hypnotized the defendant had made a statement to him in regard to his knowledge of the affair, from which statement the witness was ready to testify that the defendant was not guilty and that the defendant denied his guilt while in that condition. The trial judge sustained an objection to the testimony. He said: "The law of the United States does not recognize hypnotism. It would be an illegal defense and I can not admit it." Mr. Commissioner Searls, who prepared the opinion of the supreme court of California, wherein it, Aug. 23, 1897, affirmed the judgment of conviction of murder in the first degree, said: "We shall not stop to argue the point, and only add the court was right." Commissioners Belcher and Chipman concurred. Mr. Justice McFarland said: "I concur in the judgment and in the opinion of Mr. Commissioner Searls, but what is said in the opinion on the subject of hypnotism must be taken as applicable to the testimony offered on that subject in this case, which was clearly inadmissible, and not as covering the whole subject. It will not be necessary to determine whether or not testimony tending to show that a defendant committed the act charged while in a hypnotic condition is admissible until a case involving that precise question shall be presented." In this utterance, Justices Henshaw and Van Fleet concurred. By this decision the trial of cases by hypnotists rather than by jurors is eliminated, for one State at least. But the suggestions made in the supplemental opinion open wide the door for further legal discussion of the question of the importance to be attached to allegations of crime being committed under hypnotic influence.

Functions of the Thyroid Gland Finally Established.—The second communication from Prof. E. v. Cyon on the "Physiologic Connection Between the Nerves of the Heart and the Thyroid Gland," appears in the *Cbl. f. Phys.* of August 21 (*vide* JOURNAL, September 4, p. 504). He summarizes the result of his research as follows: 1. The function of the thyroid gland consists in the formation of a substance, iodothyrin, the chief purpose of which is to stimulate the regulating nerve mechanism of the heart to increased activity. At the same time by this transformation into an organic combination of the iodin salts finding their way into the blood, the thyroid gland succeeds in freeing the organism from substances that affect this mechanism very injuriously. 2. This function of the thyroid gland is controlled by the heart through the intermediation of the nerves previously mentioned. In this way the heart itself superintends the production of the iodothyrin necessary to its normal activity. 3. The thyroid gland owing to its location near the entrance of the carotids into the cranial cavity, and its capacity for receiving large quantities of blood into its vessels and passing it along, forms a kind of safety contrivance to prevent the brain from becoming over-gorged with blood at any sudden increase in the work accomplished by the heart or from constriction in the peripheral vascular route. In such cases the thyroid gland may act the part of a safety flood-gate, offering very slight resistance. 4. This second function of the thyroid gland is likewise under the direct control of the heart, which, by stimulating the vasodilating fibers of the thyroid gland, wards off the threatening danger from the brain in two ways: 1, by opening the sluices to divert the surplus stream of blood, and 2, by increasing the amount of iodothyrin produced.

Washington.

HEALTH OF THE DISTRICT.—The report of Health Officer Woodward for the week ended October 2, shows the number of deaths reported to have been 92, of which 54 were white and 38 colored. There were 3 fatal cases of typhoid fever and 4 of diphtheria. In his estimate for the expenses in his department for the current year he asks the following: Small-pox hospital, $5,000; disinfecting service, $5,000; abatement of nuisances, $1,000; gratuitous vaccination for the indigent, $2,000; enforcing the act regulating contagious diseases, $25,000; incinerating combustible waste, $15,000; establishment and maintenance of bacteriologic laboratory, $5,000; crematory for potter's field, $25,000; medical inspection of public schools, $10,000; one physician who shall act as clerk and deputy health officer, $1,800; five additional sanitary and food inspectors at $1,200 each; one veterinary surgeon, $900; $200 per annum increase is asked for the chief clerk and each of the physicians to the poor; $520 increase for the purchase of drugs.

PROVIDENCE HOSPITAL TRAINING SCHOOL.—At the commencement exercises of the Providence Hospital Training School, recently held, Dr. John W. Bayne presented the diplomas to five graduates from the school.

MEDICAL ASSOCIATION.—At the regular stated meeting of the Medical Association of the District, held on the 5th inst., the following were elected to membership: E. B. Behrend, A. W. Boswell, J. R. Church, Henry Darling, L. H. French, R. H. Graham, M. Griffith, A. G. Grenwell, A. Barnes Hooe, L. Johnson, G. W. Johnston, A. L. Lawrence, M. D. Magee, M. E. Miller, M. G. Motter, W. C. Murphy, W. S. Newell and Jesse Ramsburgh. The Association, in keeping with the promise of the Washington delegation to the AMERICAN MEDICAL ASSOCIATION, voted $390 to be paid to the Rush Monument Fund. Dr. Samuel C. Busey, who was the official delegate of the Association to the British Medical Association at Montreal, addressed the Association, giving a very interesting account of that meeting.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The 267th meeting of the society was held on the 1st instant. The president, Dr. George Byrd Harrison, delivered a valuable and interesting address on general medicine. The annual banquet of the society has been arranged for by the special committee in charge, to take place on the 15th instant.

MEDICAL SOCIETY.—At the meeting of the Medical Society held on the 6th instant, the following were elected to membership: Louis J. Battle, Joseph Lacy Brashaw, Franz A. R. Jung and F. A. Mazzie. Dr. McArdle read the essay for October, entitled "Tubercular affections of the female genitalia." His essay was highly scientific and instructive and was discussed by Drs. Smith, Stone, Bovee, G. W. Johnston, Forward, U. S. A., and H. L. E. Johnson.

THE NATIONAL MEDICAL REVIEW.—The former editor of the *National Medical Review*, Dr. Chas. H. Stowell, has removed from Washington to practice in Boston. The journal has passed into the hands of Drs. T. E. McArdle and George Woodruff Johnston, by whom it will be conducted in the future.

Detroit.

AT THE REGULAR MEETING of the Wayne County Medical society held on the evening of September 30, Dr. L. E. Maire read a paper on "An Improved Bandage for Cataract Operations." The bandage presented is made in the following way: A roll of starched crinoline bandage about three inches wide is thoroughly wet in warm water for the purpose of softening it.

It is then wound in the usual manner of applying a bandage over both eyes, around the head, the toilet of the operated eye having been made and it as well as its fellow covered carefully with a layer of absorbent cotton, which extends on both sides well around and over the patient's ears. After three or four turns have been taken, a piece of cardboard of circular shape, and from two to three inches in diameter, is completely moistened in water and placed over the operated eye. The bandaging is then completed, covering the pasteboard with a few more layers of the moistened crinoline. When the bandage becomes dry it is hard and firm. It is molded perfectly to the form of the face, and will prevent any ordinary injury to the operated eye because of the protecting covering of both the stiff crinoline and pasteboard which covers it. The bandage may be removed by cutting through it at the back of the head. Eyelets can be made in each side of the divided ends and the bandage replaced and fastened on securely by lacing; when the sound eye may be released, an opening may be cut out of the bandage immediately in front of it. The author claims for the bandage that it is light, that it is easily and readily applied, cheap and practical, and that it affords complete protection.

THE DETROIT MEDICAL AND LIBRARY ASSOCIATION at its annual meeting Monday, October 4, elected the following officers for the ensuing year: Dr. Andrew P. Biddle, president; P. C. McEwen, secretary; Edward G. Knill, vice-president; I. W. Gillman, treasurer.

Hospitals.

BY THE WILL of the late Henry Keep of Chicago, St. Luke's Hospital receives $5,000.——St. Alexander's, a new hospital, was dedicated at New Ulm, Minn., September 22.

THE NASSAU HOSPITAL of Queen's County, N. Y., held a fair at the Mineola grounds on October 7.

PATHOLOGIC INSTRUCTION AT THE LOUISVILLE CITY HOSPITAL.—The *American Practitioner and News*, September 4, refers to the following important improvements that have been instituted at the above named hospital: "We are pleased to learn that a capacious amphitheater, perfectly lighted by skylight and electricity, has been added to the equipment of the Louisville City Hospital for the purpose of enabling the students of the medical schools of the city to witness autopsies and pathologic demonstrations upon certain cadavers which will be set apart for this purpose. Autopsies held at other than regular hours will be advertised by notices posted on the bulletin-boards of each school. A museum for the preservation of the specimens resulting from this work will be provided in the near future. This department is under the care of Dr. Leon Solomon, pathologist to the Louisville City Hospital, and we are glad to learn that the new departure is in the main due to his influence and energy. The opportunity thus afforded our students of medicine for familiarizing themselves with the microscopic features of fresh pathologic lesions is of great value, and thanks are due Dr. Solomon for making it prominent in the teaching facilities of our city."

Societies.

The following meetings were held recently:

Alabama.—Calhoun County Medical Society, October 5.

Illinois.—American Academy of Railway Surgeons, Chicago, October 6–8.

Indiana.—Allen County Medical Society, Fort Wayne, September 29; Tippecanoe County Medical Society, Lafayette, October 4; Upper Maumee Valley Medical Association, Columbia City, September 29.

Iowa.—Clinton County Medical Association, Clinton, October 5; Iowa State Association of Railroad Surgeons, Des Moines, October 13 and 14.

Minnesota.—Winona County Medical Society, Winona, October 5.

Nebraska.—Elkhorn Valley Medical Society, Norfolk, October 5.

New York.—Medical Association of Troy, October 5.

Ohio.—Allen County Medical Society, Lima, October 5; Cuyahoga County Medical Society, Cleveland, October 5; Miami Valley Medical Society, Loveland, October 12; Trumbull County Medical Society, Warren, September 29; Union Medical Society of Northeastern Ohio, Alliance, September 29.

CHANGE OF ADDRESS.

Ball, M. V., from 529 Pine St. to Warren, Pa.
Barber, W. M., from Binghamton to Scio, Ohio.
Birkhofer, W. J., from Primghar to Thor, Iowa.
Boyd, W. J., from Topeka, Kans., to Pavilion, N. Y.
Butler, Thos. L., from 1511 Floyd St. to 1511 Fourth St., Louisville, Ky.
Clausen, J. J., from 1400 Summit to 404 New Ridge Bldg., Kansas City, Mo.
Coon, J. W., from 807 Walnut St. to 838 Booth St., Milwaukee, Wis.
Fanner, J. C., from White Bear Lake to Minneapolis, Minn.
Hatch, W. G., from Chicago to Prairie City, Ill.
Hanna, C. U., from Portsmouth to Pataskala, Ohio.
Hill, R. J., from 620½ Nicollet Av. to Room 2 Syndicate Block, Minneapolis, Minn.
Howard, W. E., from Kasbeer, Ill., to Bellevue Hospital Medical College, New York.
Kenyon, E. L., from 1753 Milwaukee Av. to Room 8, Peoples' Institute Bldg., Chicago.
Langsdale, J. M., from 1212 Tracy to 512 Altman Bldg., Kansas City, Mo.
Penncock, V. R., from Silver Plume to Longmont, Colo.
Pick, Albert, from Hyannis to Brockton, Mass.
Proctor, C. M., from Harvard, Ill., to Helena, Mont.
Pyle, Walter, from 119 S. 17th St. to 1831–33 Chestnut St., Philadelphia.
Walher, W. E., from Pass Christian to Bay St. Louis, Miss.
Warden, A. W., from 130 West 104th St. to 118 W. 82d St., New York.
Weeks, John E., from 154 Madison Av. to 46 E. 57th St., New York.
Weitz, J. A., from Montpelier, Ohio, to 509 3d Av., Detroit, Mich.
Wolfe, A. G., from 755 N. High St. to 35 W. 4th Av., Columbus, Ohio.

LETTERS RECEIVED.

Abbott, E. H. (2), Elgin, Ill.; Anderson, Winslow, San Francisco, Cal.
Barker, E. O., Guthrie, Okla.; Batten, John M., Pittsburg, Pa.; Blech, Gustavus M., Detroit, Mich.; Brennan, P. P., Lancaster, Pa.; Brose, L. D., Evansville, Ind.; Brown, G. V. I., Duluth, Minn.; Brinckerhoff, Oakland, Cal.; Bulkley, L. Duncan, New York, N. Y.
Caldwell & Co., New York, N. Y.; Catchings, B. H., Atlanta, Ga.; Coates, Truman, Oxford, Pa.; Crume, G. P., Earl Park, Ind.
Davis, G. R., Ironton, Ohio.
Eastman, Joseph R., Indianapolis, Ind.
Fauster, John U., Paulding, Ohio; Franzoni, C. W., Washington, D. C.; Friend, Samuel H., Milwaukee, Wis.
Getz, H. L., Marshalltown, Iowa; Gould, George M., Philadelphia, Pa.
Hektoen, L., Chicago, Ill.; Henry Pharmical Co., Louisville, Ky.; Huening Bros., Chicago, Ill.; Hurt, C. D., Atlanta, Ga.
Jepson, S. L. Wheeling, W. Va.
Kelly, Howard A., Baltimore, Md.
Las Vegas Hot Springs Co., Las Vegas Hot Springs, N. M.; Lineweaver & Wallace, Philadelphia, Pa.; Lichty, Daniel, Rockford, Ill.
Martin, Thomas Charles, Cleveland, Ohio; Moore's Subscription Agency, Brockport, N. Y.; Moulton, E. S., New Haven Conn.; Mumaw, H. A., Elkhart, Ind.; McCurdy, Pittsburg, Pa.
Nixon, J. W., Soldier, Kans.
O'Gorman, Jas., Baltimore, Md.
Paddock, W. R., Orland, Ill.; Pence, Le Roy, Spencerville, Ill.; Potter, S. O., San Francisco, Cal.
Radasch, Henry E., Keokuk, Iowa; Reed, Bordman, Philadelphia, Pa.; Roberts, G. W., New York, N. Y.
Sharp & Smith, Chicago, Ill.; Small, William, York, Pa.; Smart, L. G., Baltimore, Md.; Smith, William, Kirksville, Mo.; Souvenir Magazine, Ann Arbor, Mich.; Stevens, C. W., Charlestown, Mass.; Stever, J. C., Three Springs, Pa.; Stuver, E., Rawlings, Wyo.
Tomlinson, P. W. (3), Wilmington, Del.; Tracy, Edward A., S. Boston, Mass.
Ulrich, C. F., Wheeling, W. Va.; Vedder, W. D. (2), Mansfield, Pa.
Walker, H. O., Detroit, Mich.; Ward, M. B., Kansas City, Mo.; Weeks, J. E., New York, N. Y.; Williams, A. C., Elk Falls, Kans.; Williams, John H., Asheville, N. C.; Woodbridge, John Eliot, Cleveland, Ohio; Wright, O. S., Plant City, Fla.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from October 2 to 8, 1897.

First Lieut. Thomas J. Kirkpatrick, Jr., Asst. Surgeon (Ft. Douglas, Utah), is granted leave of absence for one month.

Capt. Richard W. Johnson, Asst. Surgeon, ordered to proceed from Ft. Logan, Colo., to Ft. Douglas, Utah, and report for temporary duty.

Capt. James D. Glennan, Asst. Surgeon, is relieved from duty at Ft. Clark, Texas, and ordered to Ft. Myer, Va.

Capt. Norton Strong, Asst. Surgeon, order assigning him to duty at Ft. Myer, Va., is revoked.

Capt. Robert R. Ball, Asst. Surgeon, died Oct. 5, 1897, at Washington, D. C.

Major Paul R. Brown, Surgeon, having been found by an Army retiring board incapacitated for active service by reason of disability incident to the service, is by direction of the President retired from active service this date, Oct. 1, 1897.

First Lieut. Leigh A. Fuller, Asst. Surgeon, is relieved from duty at Ft. Meade, S. Dak., and ordered to Ft. Assiniboine, Mont.

First Lieut. Edward L. Munson, Asst. Surgeon, is relieved from duty at Ft. Assiniboine, Mont., and ordered to Ft. Adams, R. I.

Capt. George McCreery, Asst. Surgeon, is relieved from temporary duty at the Soldiers' Home, Washington, D. C., and ordered to Ft. Myer, Va.

Capt. Edgar A. Mearns, Asst. Surgeon, is relieved from duty at Ft. Myer, Va., and ordered to Ft. Clark, Texas.

PROMOTIONS.

Capt. Junius L. Powell, Asst. Surgeon, to be Surgeon with the rank of Major, Oct. 1, 1897, vice Brown, retired.

RETIREMENT.

Major Paul R. Brown, Surgeon, Oct. 1, 1897, for disability incident to the service.